



NBS SPECIAL PUBLICATION **363**

SUPPLEMENT 2

U.S. DEPARTMENT OF COMMERCE / National Bureau of Standards

Bibliography on Atomic Energy Levels and Spectra

July 1975 through June 1979

NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards¹ was established by an act of Congress on March 3, 1901. The Bureau's overall goal is to strengthen and advance the Nation's science and technology and facilitate their effective application for public benefit. To this end, the Bureau conducts research and provides: (1) a basis for the Nation's physical measurement system, (2) scientific and technological services for industry and government, (3) a technical basis for equity in trade, and (4) technical services to promote public safety. The Bureau's technical work is performed by the National Measurement Laboratory, the National Engineering Laboratory, and the Institute for Computer Sciences and Technology.

THE NATIONAL MEASUREMENT LABORATORY provides the national system of physical and chemical and materials measurement; coordinates the system with measurement systems of other nations and furnishes essential services leading to accurate and uniform physical and chemical measurement throughout the Nation's scientific community, industry, and commerce; conducts materials research leading to improved methods of measurement, standards, and data on the properties of materials needed by industry, commerce, educational institutions, and Government; provides advisory and research services to other Government agencies; develops, produces, and distributes Standard Reference Materials; and provides calibration services. The Laboratory consists of the following centers:

Absolute Physical Quantities² — Radiation Research — Thermodynamics and Molecular Science — Analytical Chemistry — Materials Science.

THE NATIONAL ENGINEERING LABORATORY provides technology and technical services to the public and private sectors to address national needs and to solve national problems; conducts research in engineering and applied science in support of these efforts; builds and maintains competence in the necessary disciplines required to carry out this research and technical service; develops engineering data and measurement capabilities; provides engineering measurement traceability services; develops test methods and proposes engineering standards and code changes; develops and proposes new engineering practices; and develops and improves mechanisms to transfer results of its research to the ultimate user. The Laboratory consists of the following centers:

Applied Mathematics — Electronics and Electrical Engineering² — Mechanical Engineering and Process Technology² — Building Technology — Fire Research — Consumer Product Technology — Field Methods.

THE INSTITUTE FOR COMPUTER SCIENCES AND TECHNOLOGY conducts research and provides scientific and technical services to aid Federal agencies in the selection, acquisition, application, and use of computer technology to improve effectiveness and economy in Government operations in accordance with Public Law 89-306 (40 U.S.C. 759), relevant Executive Orders, and other directives; carries out this mission by managing the Federal Information Processing Standards Program, developing Federal ADP standards guidelines, and managing Federal participation in ADP voluntary standardization activities; provides scientific and technological advisory services and assistance to Federal agencies; and provides the technical foundation for computer-related policies of the Federal Government. The Institute consists of the following centers:

Programming Science and Technology — Computer Systems Engineering.

¹Headquarters and Laboratories at Gaithersburg, MD, unless otherwise noted; mailing address Washington, DC 20234.

²Some divisions within the center are located at Boulder, CO 80303.

DEC 4 1980

116-22-01
Zalubas
422-7
70-543
Suppl. C
1978
62

Bibliography on Atomic Energy Levels and Spectra

July 1975 through June 1979

Romuald Zalubas
Arlene Albright

Center for Radiation Research
National Measurement Laboratory
National Bureau of Standards
Washington, DC 20234



Special Publication

U.S. DEPARTMENT OF COMMERCE, Philip M. Klutznick, Secretary

Luther H. Hodges, Jr., Deputy Secretary

Jordan J. Baruch, Assistant Secretary for Productivity, Technology and Innovation

NATIONAL BUREAU OF STANDARDS, Ernest Ambler, Director

Issued October 1980

Library of Congress Catalog Card Number: 80-600055

National Bureau of Standards Special Publication 363 Supplement 2

Nat. Bur. Stand. (U.S.), Spec. Publ. 363 Suppl. 2 119 pages (Oct. 1980)

CODEN: XNBSAV

U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON: 1980

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

Price \$4.50

(Add 25 percent for other than U.S. mailing)

Foreword

The National Standard Reference Data System was established in 1963 for the purpose of promoting the critical evaluation and dissemination of numerical data of the physical sciences. The program is coordinated by the Office of Standard Reference Data of the National Bureau of Standards but involves the efforts of many groups in universities, government laboratories, and private industry. The primary aim of the program is to provide compilations of critically evaluated physical and chemical property data. These tables are published in the *Journal of Physical and Chemical Reference Data*, in the NSRDS-NBS series of the National Bureau of Standards, and through other appropriate channels.

The task of critical evaluation is carried out in various data centers, each with a well-defined technical scope. A necessary preliminary step to the critical evaluation process is the retrieval from the world scientific literature of all papers falling within the scope of the center. Each center, therefore, builds up a comprehensive well-indexed bibliographical file which forms the base for the evaluation task. Bibliographies derived from these files are published when they appear to be of value to research workers and others interested in the particular technical area.

Further information on NSRDS and the publications which form the primary output of the program may be obtained by writing to the Office of Standard Reference Data, National Bureau of Standards, Washington, DC 20234.

David R. Lide, Jr., Chief
Office of Standard Reference Data

Contents

	Page
1. Introduction	1
1.1. Reference Classification Scheme and Scope of Bibliography	1
1.2. Arrangement of Bibliography and Handling of Special Types of References	2
1.3. References	2
1.4. Compilations and Other Publications of Special Interest	3
2. Classified References for Individual Spectra	5
2.1. Index to Spectra.....	5
2.2. Reference Numbers for Individual Spectra.....	13
3. Bibliography Ordered by Reference Numbers	41
4. Author Index	91

Bibliography on Atomic Energy Levels and Spectra July 1975 through June 1979

Romuald Zalubas and Arlene Albright

This is the second supplement to NBS Special Publication 363, *Bibliography on Atomic Energy Levels and Spectra, July 1968 through June 1971*. Supplement 1 covered the period from July 1971 through June 1975, and this bibliography covers the literature from July 1975 through June 1979. It contains approximately 1200 references classified by subject for individual atoms and atomic ions. A number index identifies the references. An author index is included. References included contain data on energy levels, classified lines, wavelengths, Zeeman effect, Stark effect, hyperfine structure, isotope shift, ionization potentials, or theory which gives results for specific atoms or atomic ions.

Key words: Atomic energy levels; atomic spectra; bibliography; energy levels, atomic; spectra, atomic; wavelengths, atoms and ions.

1. Introduction

This is Supplement 2 for the publication, *Bibliography on Atomic Energy Levels and Spectra* [1]¹ by the Atomic Energy Levels Data Center. We list references to new papers which have a journal publication date up to June 30, 1979 and were available to us as reprints or in journals in our library. The format is the same as in previously published bibliographies.

1.1. Reference Classification Scheme and Scope of Bibliography

The references pertain to atomic structure and spectra that arise from interactions or excitations involving electrons in the outer shells of free atoms and atomic ions, or from inner shell excitations corresponding to frequencies up to the soft x-ray range. A paper was included if it gave results for a particular ion or spectrum falling into one of the following categories:

EL Energy Levels. Experimental energy differences, except Hfs or IS. Includes references that suggest the rejection of previously reported levels.

ND New Designations. New or changed designations or *J* values for known energy levels.

CL Classified Lines. Indicates the assignment of observed lines to transitions between energy levels that are specified by theoretical designations and/or by their positions in a known level scheme.

TA Transition Array. Lines or groups of lines assigned to transition array(s) (but not to particular levels or terms).

W Wavelengths (or wavenumbers). New measurements, or wavelengths newly assigned to a particular spectrum. References that list measurements of other entities corresponding to energy differences between levels may also be included.

ZE Zeeman Effect data or interpretation.

SE Stark Effect data or interpretation.

Hfs Hyperfine Structure. Observations and theory.

IS Isotopic or Isomeric (Nuclear) Shifts.

QF Quantum Field effects. Lamb shifts, experimental and theoretical results.

IP Ionization Potential.

SF Series Formulae. Evaluated series constants.

TE Theoretical Energies. Restricted to a few references that give calculated energy levels with accuracies about equal to or exceeding those now obtainable by observation.

¹ Figures in brackets refer to the literature references in section 1.3

PT Parametric Theory. Evaluations of the usual energy parameters of Slater-Condon theory, or extensions thereof, based on fitting the theory to experimental levels, g -factors and/or other observed quantities.

AT Ab initio Theory. These references are mostly to Hartree-Fock type calculations of energy parameters or levels.

In section 2.2, the above categories are arranged alphabetically.

References to atomic energy levels and spectra determined from solution or crystal data have category symbols enclosed in parentheses.

It is worth noting that this bibliography does not contain references to atomic transition probabilities, line intensities, or broadening. The NBS Data Center on Atomic Transition Probabilities and Atomic Line Shapes and Shifts publishes bibliographies on these subjects [2].

This bibliography is further restricted, with few exceptions, to original research papers or monographs. Textbooks, extensive compilations of special interest, and other selected publications that are not included in the classified references are given at the end of this introduction in section 1.4.

1.2. Arrangement of Bibliography and Handling of Special Types of References

Each reference has been assigned a number. In section 2.2 the appropriate reference numbers are given under headings for individual spectra (element and ionization stage). The reference numbers under each spectrum heading are listed separately for each of the content categories explained above. Reference numbers for papers reporting wavelengths of unknown ionization stage are given as the first group for the element.

The full references are given in order of the assigned numbers in section 3. Each such reference is followed by the spectra and category symbols appropriate to the content. Except for Russian titles, which are given in English, the titles of articles are given in the language in which they were published. References to articles from Russian journals that also appear in English translations are to the translation journals.

Section 2.1 is an index to the spectra for which there are references; an author index (sec. 4) follows the listing of the complete references.

The main exception from the arrangement described above is for the references 4750T through 4810T. Each of these papers give theoretical results for a rather large number of elements and/or ionization stages and their

numbers are followed by a "T" to indicate that the papers give theoretical results only. These references are included in section 3, along with the usual information on their content, and in the author index. However, they were omitted from the reference numbers for the individual spectra (sec. 2.2).

Most of the reference numbers followed by an "A" indicate abstracts of theses in Dissertation Abstracts. Some of the other references are to theses for which the AEL Data Center has obtained copies. The assigned content categories for these abstracts are those thought to be applicable to the paper itself, as indicated by the abstract; the indicated results are not necessarily included in the abstracts. These abstracts frequently provide information about work in progress.

References to lanthanide and actinide atomic energy levels and spectra determined from solution or crystal data are included for atoms and atomic ions for which these data have not been determined for the free gaseous atom or ion. For these references, the reference classification categories which apply are enclosed in parentheses to differentiate them from articles to atomic energy levels and spectra of free gaseous atoms and atomic ions.

The abbreviations of periodical titles generally follow the style given in *Bibliographic Guide for Editors and Authors* [3].

We are grateful to Dr. W. C. Martin for many valuable consultations and Dr. J. Sugar for his advice during the preparation of this bibliography. We thank Dr. L. Hagan for a smooth transfer of the bibliographic work to us, and we also thank Deirdre Thompson for performing bibliographic searches of references and proofreading the bibliography. We are grateful to Carla Messina, Robert Thompson, Connie Seymour, and Bettijoyce Molino for skills involved with creating the author and individual spectra indexes directly from each separate bibliographic entry and for placing these indexes and individual references into a computer-readable form for automatic typesetting.

1.3. References

- [1] Hagan, L., and Martin, W. C., Nat. Bur. Stand. (U.S.), Spec. Publ. 363, 103 pp. (1972); and Hagan, L., Nat. Bur. Stand. (U.S.), Spec. Publ. 363, Suppl. 1, 186 pp. (1977).
- [2] Fuhr, J. R., Wiese, W. L., and Roszman, L. J., Nat. Bur. Stand. (U.S.), Spec. Publ. 366, 165 pp. (1972); Fuhr, J. R., Roszman, L. J., and Wiese, W. L., Nat. Bur. Stand. (U.S.), Spec. Publ. 366, Suppl. 1, 73 pp. (1974); Fuhr, J. R., Martin, G. A., and Specht, B. J., Nat. Bur. Stand. (U.S.), Spec. Publ. 366, Suppl. 2, 75 pp. (1975); Fuhr, J. R., Miller, B. J., and Martin, G. A., Nat. Bur. Stand. (U.S.), Spec. Publ. 366, Suppl. 3, 83 pp. (1978); and Fuhr, J. R., Miller, B. J., and

Martin, G. A., Nat. Bur. Stand. (U.S.), Spec. Publ. 505, 283 pp. (1978).

[3] *Bibliographic Guide for Editors and Authors*, 362 pp. (American Chemical Society, Washington, D.C., 1974).

1.4. Compilations and Other Publications of Special Interest

Adelman, C. J., Adelman, S. J., and Fischel, D., A Finding List for the Multiplet Table of NSRDS-NBS 3 Sections 1-7, X-685-477-287, 119 pp., NASA, Goddard Space Flight Center, Greenbelt, MD 20771 (1977).

Adelman, S. J., Shore, S. N., and Nasson, M. A., An Astronomically Oriented Bibliography of Atomic Autoionization, Publ. Astron. Soc. Pac. **89**, 780-791 (1977).

Bashkin, S., and Stoner, J. O., Jr., *Atomic Energy Levels and Grottrian Diagrams*, Vol. 1: Hydrogen I - Phosphorus XV, 615 pp. (North-Holland Publishing Co., Amsterdam, 1975).

Bashkin, S., and Stoner, J. O., Jr., *Atomic Energy-Level and Grottrian Diagrams*, Vol. 2: Sulfur I - Titanium XXII, 650 pp. (North-Holland Publishing Co., Amsterdam, 1978).

Bashkin, S., and Stoner, J. O., Jr., *Atomic Energy-Level and Grottrian Diagrams*, Vol. 1: Hydrogen I - Phosphorus XV, Addenda, 176 pp. (North-Holland Publishing Co., Amsterdam, 1978).

Blaise, J., Camus, P., and Wyart, J. F., in *Gmelin Handbuch der Anorganischen Chemie*, Vol. 39, Part B4, pp. 124-334 (Springer-Verlag, Berlin, 1976).

Corliss, C., and Sugar, J., Energy Levels of Manganese, Mn I through Mn XXV, J. Phys. Chem. Ref. Data **6**, 1253-1329 (1977).

Corliss, C., and Sugar, J., Energy Levels of Titanium, Ti I through Ti XXII, J. Phys. Chem. Ref. Data **8**, 1-62 (1979).

Corliss, C., and Sugar, J., Energy Levels of Potassium, K I through K XIX, J. Phys. Chem. Ref. Data **8**, 1109-1145 (1979).

Edlén, B., Forbidden Lines in Astrophysics, Mem. Soc. R. Sci. Liege Collect. **9**, 235-244 (1976).

Edlén, B., The Term Analysis of Atomic Spectra: Present Status and Remaining Problems, in *Beam-Foil Spectroscopy*, Vol. 1, I. A. Sellin and D. J. Pegg, Eds. (Plenum Press, New York, 1976).

Edlén, B., The 2P Interval of $2s^22p^5$ and $2s^22p$, Opt. Pura Aplicada (Spain) **10**, 123-129 (1977).

Edlén, B., The Transitions $3s-3p$ and $3p-3d$, and the Ionization Energy of the Na I Isoelectronic Sequence, Phys. Scr. **17**, 565-574 (1978).

Edlén, B., Accurate Semi-Empirical Formulae for the Energy Structure of Li I-Like Spectra, Phys. Scr. **19**, 255-266 (1979).

Edlén, B., A Critical Survey of the Low Configurations in Be-I Like Spectra, Phys. Scr. **20**, 129-137 (1979).

Erickson, G. W., Energy Levels of One-Electron Atoms, J. Phys. Chem. Ref. Data **6**, 831-869 (1977).

Goldschmidt, Z. B., Atomic Properties (free atom), in *Handbook on the Physics and Chemistry of the Rare Earths*, Vol. 1: Metals, K. A. Gschneider, Jr. and L. Eyring, Eds. (North-Holland Publishing Co., Amsterdam, 1978).

Hanle, W., and Kleinpoppen, H., Eds., *Progress in Atomic Spectroscopy*, Part A, 712 pp. (Plenum Press, New York, 1978).

Hanle, W., and Kleinpoppen, H., Eds., *Progress in Atomic Spectroscopy*, Part B, 713-1500 pp. (Plenum Press, New York, 1979).

Heilig, K., Bibliography on Experimental Optical Isotope Shifts 1918 through October 1976, Spectrochim. Acta, Part B **32**, 1-57 (1977).

Kelly, R. L., Atomic Emission Lines in the Near Ultraviolet; Hydrogen through Krypton, NASA Tech. Memo. 80268, Sec. 1, 400 pp. and Sec. 2, 380 pp., NASA, Goddard Space Flight Center, Greenbelt, MD 20771 (1979).

Martin, W. C., and Zalubas, R., Energy Levels of Aluminum, Al I through Al XII, J. Phys. Chem. Ref. Data **8**, 817-864 (1979).

Martin, W. C., Zalubas, R., and Hagan, L., *Atomic Energy Levels—The Rare-Earth Elements*, Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.) **60**, 422 pp. (1978).

Moore, C. E., Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, O-V VIII, Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.) **3**, Sec. 8, 31 pp. (1979).

Mori, K., Otsuka, M., Kato, T., Wavelength Tables of Multiply-Charged Iron Fe VIII-XXVI, Rep. Inst. Phys. Chem. Res., Kyoto Univ. **54**, 83-98 (1978).

Outred, M., Tables of Atomic Spectral Lines for the 10000 Å to 40000 Å Region, J. Phys. Chem. Ref. Data **7**, 1-262 (1978).

Reader, J., and Corliss, C. H., Eds., Line Spectra of the Elements, in *Handbook of Chemistry and Physics*, Ed. R. C. Weast, 60th edition (CRC Press, Cleveland, Ohio, 1979). These tables were compiled by a number of contributors under the auspices of the Committee on Line Spectra of the Elements, U.S. National Academy of Sciences—National Research Council.

Striganov, A. R., Atomic Spectrum of Plutonium and Its Classification, Univ. of Lenin Order, Kurchatov Inst. At. Energy, IAE-2965, 61 pp. (1978).

Sugar, J., and Corliss, C., Energy Levels of Chromium, Cr I through Cr XXIV, J. Phys. Chem. Ref. Data **6**, 317-383 (1977).

Sugar, J., and Corliss, C., Energy Levels of Vanadium, V I through V XXIII, J. Phys. Chem. Ref. Data **7**, 1191-1262 (1978).

Sugar, J., and Corliss, C., Energy Levels of Calcium, Ca I through Ca XX, J. Phys. Chem. Ref. Data **8**, 865-916 (1979).

2. Classified References for Individual Spectra

2.1. Index to Spectra

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page	
Aluminum	13	Al ⁻	16	Beryllium	4	Be I	13	
		Al ⁻ -				Be II		
		Al I				Be III		
		Al II						
		Al IV	17	Bismuth	83	Bi ⁻	39	
		Al V				Bi I		
		Al VI				Bi II		
		Al VII				Bi III		
		Al X				Bi XV		
		Al XI				Bi XVI		
		Al XII						
		Al XIII			Boron	5	B ⁻ -	13
Americium	95					B I		
		Am III	40			B II		
		Am IV				B III		
		Am V				B IV	14	
		Am VI				B V		
		Am VII						
Antimony	51	Am VIII		Bromine	35	Br IV	28	
						Br V		
		Sb ⁻	32			Br VI		
		Sb I				Br XXIV		
		Sb VI				Br XXV		
		Sb VII				Br XXXI		
Argon	18	Ar ⁻	19	Cadmium	48	Cd ⁻	32	
		Ar I				Cd I		
		Ar II				Cd II		
		Ar III				Cd IV		
		Ar IV				Cd XX		
		Ar V						
		Ar VI			Calcium	20	Ca I	20
		Ar VII				Ca II		
		Ar VIII				Ca III		
		Ar IX				Ca V		
		Ar X				Ca VI		
		Ar XI				Ca VII		
		Ar XII				Ca VIII		
		Ar XIII				Ca IX		
		Ar XIV				Ca X		
		Ar XV				Ca XI		
		Ar XVI				Ca XII		
		Ar XVII				Ca XIII		
		Ar XVIII				Ca XIV		
Arsenic	33	As ⁻	27			Ca XV		
		As XXIII	28			Ca XVI		
		As XXV				Ca XVII		
Barium	56					Ca XVIII		
						Ca XIX		
		Ba I	33	Californium	98	Cf I	40	
		Ba II	34			Cf II		
		Ba III						
		Ba IV						
Ba X		Carbon	6	C ⁻ -	14			
Ba XI				C ⁻				
Berkelium	97					C I		
		Bk I	40			C II		
		Bk II				C III		

2.1. Index to Spectra—Continued

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page
Carbon—Continued		C IV	14	Cobalt—Continued		Co XX	25
		C V				Co XXI	
		C VI				Co XXIV	
Cerium	58	Ce I	34	Copper	29	Cu I	26
		Ce II				Cu II	
		Ce XII				Cu III	
		Ce XIII				Cu IV	
						Cu V	
Cesium	55	Cs I	33			Cu IX	
		Cs II				Cu X	
		Cs III				Cu XI	
		Cs IX				Cu XII	
		Cs X				Cu XIII	
Chlorine	17	Cl I	18			Cu XIV	
		Cl VII				Cu XVI	
		Cl VIII				Cu XVII	
		Cl X				Cu XVIII	
		Cl XII				Cu XIX	
		Cl XIV				Cu XXI	
		Cl XV				Cu XXII	
		Cl XVI	19			Cu XXIII	
		Cl XVII				Cu XXVI	
						Cu XXVIII	
Chromium	24	Cr ⁻	22	Curium	96	Cm I	40
		Cr I				Cm II	
		Cr II				Cm IV	
		Cr III					
		Cr IV		Dysprosium	66	Dy I	35
		Cr V				Dy II	
		Cr VI				Dy V	
		Cr VII				Dy XXXIX	
		Cr VIII					
		Cr IX		Erbium	68	Er I	36
		Cr X	23			Er II	
		Cr XI				Er V	
		Cr XIV					
		Cr XV		Europium	63	Eu I	35
		Cr XVII				Eu III	
		Cr XVIII				Eu V	
		Cr XIX					
		Cr XXI		Fluorine	9	F I	15
		Cr XXII				F II	
		Cr XXIII				F III	
						F V	
Cobalt	27	Co I	25			F VI	
		Co II				F VII	
		Co III				F VIII	
		Co V				F IX	
		Co VI					
		Co VII		Francium	87	Fr I	39
		Co X					
		Co XIV		Gadolinium	64	Gd I	35
		Co XVI				Gd II	
		Co XVII				Gd IV	
		Co XVIII				Gd V	
		Co XIX					

2.1. Index to Spectra—Continued

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page	
Gallium	31	Ga ⁻	27	Iodine-Continued		I XXIV	33	
		Ga I				I XXV		
		Ga II				I XXVI		
		Ga IV		Iridium	77	Ir I	38	
		Ga XXI				Ir II		
		Ga XXIII				Ir IX		
		Ga XXIV				Ir X		
Germanium	32	Ge ⁻	27	Iron	26	Fe I	23	
		Ge I				Fe II	24	
		Ge V				Fe III		
		Ge XIII				Fe IV		
		Ge XIV				Fe V		
		Ge XIX				Fe VI		
		Ge XXII				Fe VIII		
		Ge XXIV				Fe IX		
		Ge XXV				Fe X		
		Ge XXIX				Fe XI		
Gold	79	Au I	38		Fe XII			
		Au II		Fe XIII				
		Au XI		Fe XIV				
		Au XII		Fe XV				
		Au XXVI		Fe XVI				
		Au XXX		Fe XVII				
		Au XXXIV		Fe XVIII				
		Au XXXIX		Fe XIX				
		Au LII		Fe XX				
		Au LXIX		Fe XXI				
				Fe XXII				
Hafnium	72	Hf I	36	Krypton	36	Fe XXIII	28	
		Hf II				Fe XXIV		
		Hf III				Fe XXV		
		Hf IV				Fe XXVI		
		Hf V						
Helium	2	He ⁻	13			Kr I		
		He I				Kr II		
		He II				Kr III		
Holmium	67	Ho I	36			Kr IV		
		Ho II				Kr V		
		Ho III				Kr VI		
		Ho IV				Kr VII		
		Ho V				Kr VIII		
						Kr IX		
Hydrogen	1	H ⁻	13			Kr X		
		H I				Kr XI		
						Kr XII		
Indium	49	In ⁻	32			Kr XIII		
		In I		Kr XXV				
		In III		Kr XXVI				
		In V		Kr XXVII				
		In VI		Kr XXXIII				
		In XXI		Kr XXXIV				
Iodine	53	I I	33	Lanthanum	57	Kr XXXV	29	
		I II				La I		
		I VI				La IV		
				La V	34			

2.1. Index to Spectra—Continued

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page
Lanthanum—Continued		La XI	34	Molybdenum	42	Mo I	30
		La XII				Mo II	
Lead	82	Pb ⁻	39			Mo VI	
		Pb I				Mo VIII	
		Pb II				Mo IX	
		Pb III				Mo X	
		Pb IV				Mo XI	
		Pb XIV				Mo XIII	
		Pb XV				Mo XIV	31
						Mo XV	
Lithium	3	Li I	13			Mo XVI	
		Li II				Mo XVII	
		Li III				Mo XVIII	
						Mo XIX	
Lutetium	71	Lu I	36			Mo XX	
		Lu II				Mo XXI	
		Lu III				Mo XXII	
		Lu IV				Mo XXIII	
		Lu V				Mo XXIV	
						Mo XXV	
Magnesium	12	Mg ⁻	16			Mo XXVI	
		Mg I				Mo XXVII	
		Mg II				Mo XXVIII	
		Mg III				Mo XXIX	
		Mg V				Mo XXX	
		Mg VI				Mo XXXI	
		Mg VII				Mo XXXII	
		Mg VIII				Mo XXXIII	
		Mg IX				Mo XXXIV	
		Mg X				Mo XXXIX	
		Mg XI				Mo XL	
		Mg XII				Mo XLI	
Manganese	25	Mn I	23	Neodymium	60	Nd I	34
		Mn III				Nd II	
		Mn IV				Nd III	35
		Mn V				Nd IV	
		Mn VI				Nd V	
		Mn VIII				Nd XIV	
		Mn IX				Nd XV	
		Mn X		Neon	10	Ne ⁻	15
		Mn XI				Ne I	
		Mn XII				Ne II	
		Mn XV				Ne III	
		Mn XVI				Ne IV	
		Mn XVIII				Ne V	
		Mn XIX				Ne VI	
		Mn XX				Ne VII	
		Mn XXI				Ne VIII	
		Mn XXII				Ne IX	16
		Mn XXIII				Ne X	
Mercury	80	Hg ⁻	38	Neptunium	93	Np I	39
		Hg I				Np IV	40
		Hg II				Np V	
		Hg XII				Np VI	
		Hg XIII				Np VII	

2.1. Index to Spectra—Continued

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page
Nickel	28	Ni ⁻	25	Palladium—Continued		Pd XVIII	31
		Ni I		Phosphorus	15	P ⁻	17
		Ni II				P ⁻	
		Ni III				P I	
		Ni IV				P III	
		Ni V				P IV	
		Ni VI				P V	18
		Ni VII				P VI	
		Ni VIII				P IX	
		Ni X				P X	
		Ni XI	26			P XI	
		Ni XII				P XII	
		Ni XIII				P XIII	
		Ni XIV				P XIV	
		Ni XV				P XV	
		Ni XVI		Platinum	78	Pt I	38
		Ni XVII				Pt II	
		Ni XVIII				Pt X	
		Ni XIX				Pt XI	
		Ni XX				Pt LI	
Niobium	41	Nb I	30	Plutonium	94	Pu	40
		Nb IV				Pu IV	
		Nb V				Pu V	
		Nb VI				Pu VI	
		Nb VII				Pu VII	
		Nb VIII		Potassium	19	K I	19
		Nb IX				K II	
		Nb X				K IV	
		Nb XI				K V	
Nitrogen	7	N ⁻	14			K VI	
		N I				K VII	
		N II				K VIII	
		N III				K IX	
		N IV				K X	
		N V				K XII	20
		N VI				K XIV	
		N VII				K XVI	
Osmium	76	Os I	37	Praseodymium	59	K XVII	
		Os VIII				K XVIII	
		Os IX	38			Pr I	34
Oxygen	8	O ⁻	14			Pr III	
		O I				Pr IV	
		O II				Pr V	
		O III				Pr XIII	
		O IV				Pr XIV	
		O V		Promethium	61	Pm I	35
		O VI	15			Pm IV	
		O VII				Pm V	
Palladium	46	O VIII		Rhenium	75	Re I	37
		Pd I	31			Re II	
						Re VII	

2.1. Index to Spectra—Continued

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page
Rhenium—Continued		Re VIII	37	Silicon—Continued		Si XI	17
Rhodium	45	Rh I Rh XLI	31			Si XII Si XIII Si XIV	
Rubidium	37	Rb I Rb II Rb III Rb VIII Rb IX Rb XXVI Rb XXVII Rb XXVIII	29	Silver	47	Ag I Ag II Ag IV Ag XIX Ag XXXVIII	31 32
Ruthenium	44	Ru I	31	Sodium	11	Na I Na II Na IV Na X	16
Samarium	62	Sm I Sm V Sm XVI	35	Strontium	38	Sr I Sr II Sr IV Sr IX Sr X Sr XXVII Sr XXVIII Sr XXIX	29
Scandium	21	Sc I Sc IV Sc VI Sc VII Sc VIII Sc IX Sc X Sc XI Sc XII Sc XIV Sc XVI Sc XVIII Sc XIX Sc XX	20 21	Sulfur	16	S ⁻ S I S II S III S IV S V S VI S VII S VIII S IX S X S XI S XII S XIII S XIV S XV S XVI	18
Selenium	34	Se I Se II Se III Se IV Se V Se VI Se VII Se VIII Se XXIII Se XXIV Se XXV Se XXVI Se XXXI	28	Tantalum	73	Ta I Ta II Ta IV Ta V Ta VI Ta XLVI Ta XLVII	37
Silicon	14	Si Si ⁻ Si I Si II Si V Si VI Si VII Si VIII Si IX Si X	17	Technetium	43	Tc I	31
				Tellurium	52	Te ⁻ Te I Te II Te VII Te VIII	32 33

2.1. Index to Spectra—Continued

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page		
Terbium	65	Tb I	35	Tungsten—Continued		W XXV	37		
		Tb II				W XXVI			
		Tb IV				W XXVII			
		Tb V				W XXVIII			
Thallium	81	Tl ⁻	38			W XXIX			
		Tl I				W XXX			
		Tl II				W XXXI			
		Tl XIII				W XXXII			
		Tl XIV				W XXXIII			
Thorium	90		39			W XXXIV			
		Th I				W XXXV			
		Th V				W XLV			
		Th LXXX		W XLVII					
Thulium	69	Tm I	36	Uranium	92	U I	39		
		Tm II				U II			
		Tm IV				U III			
		Tm V				U IV			
Tin	50	Sn ⁻	32			U V			
		Sn I				U VI			
		Sn II				U VII			
		Sn V				U LXIII			
		Sn VI		Vanadium	23	V I	21		
Sn XLVI	V II	22							
Titanium	22	Ti I	V III						
		Ti II	V IV						
		Ti III	V V						
		Ti IV	V VI						
		Ti V	V VII						
		Ti VI	V VIII						
		Ti VII	V IX						
		Ti VIII	V X						
		Ti IX	V XI						
		Ti X	V XII						
		Ti XI	V XIII						
		Ti XII	V XIV						
		Ti XIII	V XVI						
		Ti XIV	V XVII						
		Ti XV	V XVIII						
		Ti XVI	V XX						
		Ti XVII	V XXI						
		Ti XIX	V XXII						
		Tungsten	74	W I	37	Xenon	54	Xe I	33
				W II				Xe II	
W VI	Xe III								
W VII	Xe IV								
W XX	Xe XXV								
W XXI	Xe XXVI								
W XXII	Xe XLIV								
W XXIII	Ytterbium			70		Yb I	36		
W XXIV		Yb II							
	Yb III								
	Yb IV								
	Yb V								

2.1. Index to Spectra—Continued

Element	Z	Spectrum	Page	Element	Z	Spectrum	Page
Yttrium	39	Y I	29	Zinc-Continued		Zn XXII	27
		Y II				Zn XXIII	
		Y III				Zn XXIV	
		Y VI				Zn XXVI	
		Y VII				Zn XXVII	
		Y VIII					
		Y X					
		Y XI					
		Y XXVIII					
		Y XXIX					
		Y XXX					
		Y XXXI					
Zinc	30	Zn ⁻	27	Zirconium	40	Zr I	30
		Zn I				Zr III	
		Zn III				Zr IV	
		Zn X				Zr V	
		Zn XVII				Zr VII	
		Zn XVIII				Zr VIII	
		Zn XIX				Zr IX	
		Zn XX				Zr XI	
						Zr XIII	
						Zr XV	
						Zr XXIX	
						Zr XXX	
						Zr XXXI	
						Zr XXXVI	

2.2. Reference Numbers for Individual Spectra

Hydrogen			Li I-Continued		
H ⁻	AT	3669, 3759, 3832, 4091	ND	4191, 4222	
	EL	3814, 3995	PT	3566, 3750, 4166, 4424, 4425	
	PT	4071	SE	4194	
			SF	4072	
H I	EL	3562, 4214, 4354, 4554, 4702	TA	4438	
	Hfs	3562, 3796	TE	4011	
	IS	3707	W	3681, 3806, 3814, 4034, 4080, 4191, 4617	
	QF	3796, 3854, 3981, 4147, 4227, 4260, 4273, 4276, 4353, 4386, 4496, 4512, 4587, 4707	ZE	4114	
	SE	3963, 4181			
			Li II		
			AT	3566, 4175, 4563	
Helium			CL	3698, 3814, 4046, 4191, 4250	
He ⁻	AT	4023	EL	3566, 3814, 4705	
	EL	3938, 3939, 4002, 4023, 4029, 4070, 4129	Hfs	4420	
	PT	4166	ND	4191	
			PT	3566	
He I	AT	3669, 3712, 3844, 3852, 4015, 4073, 4091, 4175, 4255, 4334, 4490, 4507, 4616, 4700	W	3698, 3814, 4034, 4046, 4191, 4283	
	CL	3814, 3877, 3909, 4125, 4689	Li III		
	EL	3558, 3676, 3686, 3741, 3814, 3817, 3845, 3848, 3853, 3877, 3909, 3939, 3959, 3980, 4013, 4078, 4238, 4325, 4364, 4401, 4446, 4621, 4670, 4689	QF	3795A, 3981	
	Hfs	4631	W	4034, 4283	
	IS	4349			
	PT	3688, 3876, 3879, 4524	Beryllium		
	QF	3860, 4690	Be I	AT	3723, 3895, 4332, 4365, 4657
	SE	3845, 3897, 3918, 4125		EL	3567, 4102, 4516
	TA	4589		IP	3828, 4671
	TE	4011, 4156		PT	3830
	W	3814, 3877, 3909, 4013, 4034		W	3797
	ZE	3675, 3688, 4098, 4198, 4200, 4358A	Be II	AT	3901, 4465, 4598
He II	AT	4710		CL	4172, 4249, 4250
	EL	3557, 3594, 3595, 3826, 4155, 4209, 4614		EL	4102, 4172, 4516
	Hfs	3721, 4025		Hfs	3737, 3746, 3902, 4103
	PT	4710		IP	4671
	QF	3594, 3595, 3826, 3981, 4207		W	3797, 4172
	SE	3971, 4207, 4513		ZE	3722
	W	4034	Be III	CL	4172
				EL	4172
				Hfs	3722
				W	3797, 4172
				ZE	3722
Lithium			Boron		
Li I	AT	3566, 3708, 3806, 3839, 3847, 4139, 4212, 4222, 4393, 4408, 4451, 4465, 4497, 4546, 4598, 4669	B ⁻	TE	4012
	CL	3806, 3814, 4080, 4101, 4191, 4192, 4379, 4617			
	EL	3566, 3670, 3671, 3806, 3814, 4080, 4101, 4102, 4122, 4192, 4362, 4379, 4411, 4705			
	Hfs	3576, 3708, 3725, 3746, 3750, 3839, 3900, 4103, 4263, 4362, 4393, 4669			
	IP	4671	B I	CL	3744
	IS	4362, 4441, 4488		EL	3744, 4517
				ND	4672
				W	3744
			B II	AT	4365
				EL	4102, 4517
				IP	4671
				W	4106
			B III	AT	4465, 4598
				CL	3987, 3989, 4036, 4172, 4250
				EL	3989, 4036, 4102, 4172, 4517
				Hfs	3746, 4103

2.2. Reference Numbers for Individual Spectra—Continued

B III—Continued

IP 4671
ND 4036
W 3989, 4034, 4036, 4172

B IV CL 3987, 3989, 4172, 4250, 4319, 4529
EL 3989, 4172
W 3989, 4034, 4172

B V CL 4529

Carbon

C⁺⁺ TE 4012

C⁺ AT 4186

C I AT 3575, 3916, 4638, 4649
CL 3731
EL 3731
ND 3731
SE 3911, 4137
TE 4011
W 3731, 4059

C II AT 4649
CL 4142
Hfs 4093

C III AT 3629A, 4365, 4649
CL 4142
Hfs 4093, 4141
IP 4671
PT 4568

C IV AT 4232, 4393, 4465, 4598, 4649
CL 3987, 4172, 4250, 4368
EL 4172, 4368
Hfs 3746, 4103, 4393
IP 4671
PT 4574
W 4034, 4172

C V AT 4094
CL 3987, 4172, 4250
EL 4172
Hfs 4094
QF 3981
W 3748, 3801, 4034, 4172

C VI W 3748, 3801, 4034

Nitrogen

N⁺⁺ TE 4012

N I AT 3783, 4186
CL 3928
EL 3928
Hfs 4247
IP 3928

N I—Continued

W 3928
ZE 4247

N II CL 3885, 3928, 4142, 4491
EL 3928
IP 3928
TE 4011
W 3928

N III CL 3885, 3928, 4142, 4491
EL 3928
Hfs 3958
IP 3928
W 3928

N IV AT 3629A, 4365
CL 4142
EL 4066
Hfs 3697, 3762, 4103
IP 4671
ND 3614
PT 4568

N V AT 4598
CL 3650, 3885, 3984, 3987, 3988, 4172, 4368
EL 3650, 3984, 4172, 4368
Hfs 3746
IP 4671
PT 4574
W 3650, 3856, 3984, 3988, 4034, 4172

N VI CL 3988, 4172
EL 4172
W 3988, 4034, 4172

N VII W 4034

Oxygen

O⁺⁺ TE 4012

O I AT 3716, 3916, 4113
CL 3760, 4442, 4706A
EL 3696, 3760, 4340
IP 3760
W 3760, 3835
ZE 4432

O II AT 4186
CL 4142

O III AT 4638
CL 4706A
W 3738

O IV W 3829

O V AT 3629A, 4365
CL 3718, 4142, 4218

2.2. Reference Numbers for Individual Spectra—Continued

O v—Continued

EL 4066
IP 4671
ND 4218
PT 4568
W 3829, 4218

O vi

AT 4598
CL 3650, 3718, 3984, 3987, 4004, 4172,
4218, 4296, 4368, 4521A
EL 3650, 3984, 4004, 4172, 4296, 4368,
4521A
Hfs 3746
IP 4671
ND 4218
W 3624, 3650, 3829, 3984, 4004, 4034,
4172, 4218

O vii

CL 3718, 3784, 3987, 4172, 4218, 4474
EL 3784, 4172
ND 4218
W 3784, 3960, 4034, 4172, 4218

O viii

CL 3784, 4218
EL 3784
ND 4218
W 3784, 4034, 4218

Fluorine

F i

CL 4442
EL 4442
Hfs 4431

F ii

AT 3716

F iii

AT 4186

F v

CL 3987
W 3748

F vi

CL 4581
IP 4671
W 3748, 3977

F vii

AT 4598
CL 4004, 4581
EL 4004
Hfs 3746
IP 4671
W 3748, 3977, 4004

F viii

CL 4581
EL 3982
Hfs 3982
W 3748, 3977

F ix

CL 4520
QF 3786
W 3748, 3977

Neon

Ne⁻

EL 3720, 3938

Ne i

AT 3612, 3951, 4510, 4659
CL 3735, 4003, 4024, 4384, 4494, 4678,
4701
EL 3804, 3940, 4003, 4177, 4183, 4384,
4614, 4678, 4701
Hfs 3577, 3590, 3781, 4067, 4183, 4184,
4298
IP 4671
IS 3735, 3767, 3781, 4314, 4468, 4647
PT 3673, 4016
W 3735
ZE 3735, 3996, 4130, 4243, 4367

Ne ii

AT 3951, 4492
CL 4370
EL 3720, 3956, 4370, 4437
IP 3824
W 4509
ZE 4492

Ne iii

AT 3716
CL 3684, 4400
PT 4484
W 3568, 3684, 3957

Ne iv

AT 4667
CL 3684, 4694
EL 4694
PT 4522
W 3568, 3684

Ne v

AT 4667
CL 3568, 4674
EL 3568
PT 4484, 4522
W 3568

Ne vi

AT 4667
CL 4518, 4595
EL 4595
PT 4522
W 3568

Ne vii

AT 4365, 4667
CL 4595
EL 4066, 4595
IP 4671
PT 4522, 4568
W 3554, 3568

Ne viii

AT 4598, 4667
CL 3554, 3650, 3784, 3984, 4392, 4595
EL 3650, 3784, 3984, 4140, 4392, 4595
Hfs 3746
IP 4671
PT 4522
W 3554, 3554, 3650, 3784, 3984, 4034

2.2. Reference Numbers for Individual Spectra—Continued

Ne IX AT 4667
 CL 3784, 3984, 4392, 4674
 EL 3784, 3984, 4392
 PT 4522
 W 3554, 3784, 3984, 4034

Ne X CL 3784, 4392
 EL 3784, 4392
 W 3554, 3784, 4034

Sodium

Na I AT 3666, 3806, 3847, 4302, 4373, 4590
 CL 3791, 3806, 3882, 4377, 4565, 4596,
 4697
 EL 3717, 3791, 3806, 3823A, 3882, 3899,
 3907, 3968, 3978, 4031, 4041, 4053,
 4061, 4119, 4215, 4239, 4271, 4348,
 4373, 4489, 4526, 4596, 4609, 4697
 Hfs 3592, 3661, 3808, 3820, 3875, 3908,
 3964, 3976, 3994, 3997A, 4062, 4063,
 4079, 4217, 4239, 4282, 4427, 4460,
 4481, 4628
 IS 3592, 3954, 3974, 4289, 4352, 4628
 ND 4596
 PT 3789, 3908
 SE 3776, 3785, 3966, 3976, 3994, 4119,
 4221, 4609
 SF 4072
 TA 4505, 4602
 W 3791, 3806, 3882, 4697
 ZE 4179A, 4208

Na II AT 4590, 4633
 CL 4668
 EL 4526, 4633, 4668
 IP 4671

Na IV CL 3834
 EL 3834
 ND 3834
 PT 3834
 W 3834

Na X CL 3784
 EL 3784
 W 3784

Magnesium

Mg⁺ EL 4044

Mg I AT 4339, 4462
 CL 3561, 4057, 4355, 4462, 4561
 EL 3561, 4057, 4267, 4312, 4462, 4561,
 4572
 IS 4068, 4244, 4686
 W 3561

Mg II AT 3806, 4302, 4373
 CL 3806, 4467

Mg II—Continued
 EL 3806, 4267, 4324, 4373, 4467, 4561
 ND 3910
 PT 3910
 W 3806

Mg III AT 4480
 CL 4197
 EL 4197
 IP 4671

Mg V AT 4113, 4567
 CL 4474, 4567
 EL 4567
 PT 4484, 4567

Mg VI CL 4474

Mg VII AT 4440, 4638
 CL 4474
 PT 4484

Mg VIII CL 4472

Mg IX AT 4330
 CL 4330

Mg X AT 3604, 4466
 CL 3784, 4466
 EL 3784
 ND 3816
 TA 4650
 W 3604, 3784, 3816, 4466

Mg XI AT 4533
 CL 3784, 4042, 4110, 4608
 EL 3784, 4110
 ND 3816
 SF 4608
 TA 4650, 4653
 W 3784, 3816, 4042

Mg XII CL 3690, 4042, 4539, 4612
 ND 3816
 W 3816, 4042

Aluminum

Al W 4576

Al⁺ TE 4012

Al I AT 3838
 CL 3597, 3736
 EL 3597
 IP 3597
 W 3597, 3736

Al II AT 3810
 CL 4575
 EL 4575

2.2. Reference Numbers for Individual Spectra—Continued

Al II—Continued			Si VI	CL	4206
	IP	4575		EL	4206
	ND	4575		PT	4206
Al IV			Si VII	AT	4402, 4567
	CL	4197		CL	4567
	EL	4197		EL	4567
	IP	4671		PT	4484, 4567
	SF	4456			
	W	3967			
Al V			Si VIII	CL	3888, 4470, 4474, 4549
	AT	3565		EL	3634
	CL	3565, 4111, 4607		PT	4484
	EL	3565		W	3634, 3888
	IP	3565			
	PT	3565	Si IX	AT	4440
	W	3565		CL	3888
Al VI				PT	4484
	AT	4567		W	3888, 3977
	CL	3565, 4111, 4543, 4567	Si X	AT	3643
	EL	3565, 4567		CL	3888, 4472
	PT	4567		W	3888, 3977
	W	3565			
Al VII			Si XI	AT	4330
	CL	4111, 4674		CL	3888, 4600
Al X				W	3888, 3977, 4600
	AT	4330	Si XII	AT	3604, 4466
	CL	4330		CL	3888, 4004, 4466, 4539, 4600
Al XI				EL	4004
	AT	3604, 4466		W	3604, 3888, 3977, 4004, 4466, 4599, 4600
	CL	4050, 4083, 4203, 4466, 4684	Si XIII	CL	3888, 4042, 4539, 4588, 4600
	EL	4083		EL	4588
	W	3604, 3801, 4050, 4466		TA	4547, 4653
Al XII				W	3888, 3977, 4042, 4600
	CL	4042, 4050, 4110, 4203, 4684	Si XIV	CL	3888, 4042, 4539, 4600, 4684
	EL	4110		TA	4547
	TA	4547, 4653		W	3888, 4042, 4600
	W	4042, 4050, 4301			
Al XIII					
	CL	4042, 4050, 4539			
	SE	3975			
	TA	4547			
	W	4042, 4050, 4301			
Silicon					
Si	W	3986			
Si ⁺⁺	TE	4012			
Si I	AT	4452, 4453			
	W	4081			
Si II	AT	3813			
Si V	CL	3640, 3934			
	EL	3640, 3934			
	IP	4671			
	PT	3934			
	SF	4456			
	W	3640, 3934			
Phosphorus					
P ⁻	TE	4012			
P ⁻	EL	4121			
P I	AT	4336, 4646			
	CL	4646			
	EL	4646			
P III	CL	4134			
	EL	4134			
	IP	4134			
	ND	4134			
P IV	CL	4144			
	EL	4144			
	ND	4144			

2.2. Reference Numbers for Individual Spectra—Continued

[illegible]

2.2. Reference Numbers for Individual Spectra—Continued

Cl xvi	CL	4110, 4398	Ar xiv	PT	4623
	EL	4110, 4398	Ar xv	AT	4330
	QF	4398, 4613		CL	4518
	TA	4653	Ar xvi	AT	3604, 4675
Cl xvii	QF	4635		CL	4292, 4681
Argon				EL	3604, 4292, 4416
Ar ⁻	EL	3617, 3938		W	3604
Ar i	CL	3979, 4385, 4678	Ar xvii	AT	4533
	EL	3869, 3940, 4177, 4385, 4458, 4475, 4483, 4532, 4678		CL	3985, 4205, 4292, 4681
	IP	4671		EL	4292, 4416
	ND	3869		W	3985, 4193
	PT	3724	Ar xviii	QF	4426, 4626
	SF	4532	Potassium		
	W	3979, 4158	K i	AT	3599, 3602, 3847, 4582
Ar ii	AT	4492		CL	3599, 3602, 4315
	EL	3720, 3956, 4322		EL	3599, 3602, 3775, 3925, 4251, 4315, 4478, 4695
	IP	3824		Hfs	3556, 3908, 4481
	ZE	4492		IP	3602
Ar iii	AT	4351		ND	4582
	CL	3684		PT	3908
	W	3684		SE	3556
Ar iv	CL	3684		SF	4072
	W	3684		W	3599, 3602, 3868
Ar v	CL	4421		ZE	3556, 3944
Ar vi	CL	4421	K ii	IP	4671
Ar vii	CL	3983, 4421, 4580	K iv	CL	3633
	W	3983		EL	3633
Ar viii	AT	4302		W	3633
	CL	3983, 4421, 4580	K v	CL	3633
	IP	4344		EL	3633
	SF	4344		W	3633
	W	3983	K vi	CL	3633
Ar ix	CL	4399, 4421, 4580		EL	3633
	EL	4421		W	3633
	IP	4671	K vii	CL	3633
	SF	4456		EL	3633
Ar x	CL	4421, 4472		W	3633, 3851
	W	4580	K viii	W	3851
Ar xi	CL	4474	K ix	CL	3851, 3896*
	PT	3922, 4484		EL	3851, 3896
	W	4580		IP	4344
Ar xii	PT	4484		ND	3851, 3896
	W	4580		SF	4344
				W	3851, 3896
Ar xiii	EL	3920	K x	CL	4564
	PT	3920, 4484, 4623		IP	4671
				SF	4456

2.2. Reference Numbers for Individual Spectra—Continued

K XII	PT	3922	Ca X	CL	3551, 3851, 3896, 3943
K XIV	PT	3920		EL	3851, 3896, 3943
K XVI	AT	4330		IP	4344
K XVII	AT	4466		ND	3851, 3896
	CL	3840, 4466		SF	4344
	TA	4650		W	3551, 3851, 3896, 3943
	W	3604, 4466	Ca XI	CL	3705, 4564
K XVIII	TA	4650, 4653		IP	4671
Calcium				SF	4456
Ca I	AT	3598, 3685, 4405		W	3705
	CL	3685, 3880, 4084, 4135, 4169, 4499	Ca XII	CL	4472, 4538
	EL	3627, 3685, 3880, 3933, 3941, 4084, 4135, 4169, 4499, 4542		EL	3920
	Hfs	4579, 4627		PT	3920
	IS	3950, 4210, 4405, 4579	Ca XIII	AT	4402
	ND	3880		CL	4538
	PT	3627, 3880		PT	3922, 4484
	QF	4692	Ca XIV	CL	3551
	SE	4135		EL	3551
	SF	4157		PT	4484
	TA	4473		W	3551
	W	3685, 3880, 3933, 3993, 4084, 4169, 4499	Ca XV	AT	4403
Ca II	AT	4582		CL	3551, 4538
	CL	4499, 4644		EL	3551
	EL	3933, 4499		PT	3920, 4484, 4623
	ND	4582		W	3551
	W	3933, 4499	Ca XVI	CL	3628
Ca III	CL	4197		EL	3628
	EL	3933, 4197		PT	4449, 4623
	IP	4671		W	3551, 3628
	W	3933	Ca XVII	AT	4330, 4637
Ca V	CL	3633		CL	3628
	EL	3633		EL	3628
	W	3633		W	3551, 3628
Ca VI	CL	3633	Ca XVIII	AT	3604
	EL	3633		CL	3840, 4518
	W	3633		W	3604
Ca VII	CL	3633	Ca XIX	AT	4533
	EL	3633		TA	4653
	PT	4434	Scandium		
	W	3633	Sc I	AT	3807
Ca VIII	CL	3633		CL	4189
	EL	3633		EL	4189
	W	3633		Hfs	3555, 3768, 3769
Ca IX	CL	3943, 4434		ND	4189
	EL	3943		PT	3807, 4224
	PT	4434		W	4189
	W	3943		ZE	4189
			Sc IV	CL	4197
				EL	4197
				IP	4671

2.2. Reference Numbers for Individual Spectra—Continued

Sc VI	CL	3633	Ti VI	W	4037	
	EL	3633		Ti VII	CL	3633
	W	3633			EL	3633
Sc VII	CL	3633			W	3633, 4037
	EL	3633		Ti VIII	CL	3633
	W	3633			EL	3633
Sc VIII	CL	3633			W	3633, 4037
	EL	3633		Ti IX	CL	3633
	W	3633			EL	3633
Sc IX	CL	3633			W	3633, 4037
	EL	3633		Ti X	CL	3633
	W	3633			EL	3633
Sc X	CL	4434			W	3633, 4037
				Ti XI	CL	3943, 4434
Sc XI	CL	3896, 3943				EL
	EL	3896, 3943	W			3748, 3943, 4037
	IP	4344	Ti XII	CL		3623, 3896
	ND	3896		EL	3623, 3896	
	SF	4344		IP	3623, 4344	
	W	3896, 3943		ND	3896	
Sc XII	CL	3705, 4564			PT	3623
	SF	4456			SF	3623, 4344
	W	3705	W		3623, 3748, 3896, 4037	
Sc XIV	PT	3922	Ti XIII		CL	3705, 4564
Sc XVI	PT	3920			SF	4456
					W	3705, 3748, 4037
Sc XVIII	AT	4330	Ti XIV	W	3748, 4037	
Sc XIX	CL	3840		Ti XV	PT	3922, 4484
Sc XX	TA	4653	W		3748	
Titanium			Ti XVI	CL	3591	
Ti I	Hfs	3555		EL	3591	
				PT	4484	
				W	3591	
	Ti II	W	4037	Ti XVII	PT	3920, 4484
			Ti XIX		AT	4043, 4330
Ti III	CL	3593			CL	4043, 4330, 4571
	EL	3593			W	4043
	IP	3593			Ti XX	CL
	PT	3593, 3871, 4664	Ti XXI	TA		4547, 4653
	SF	3593		W		4136
	W	3593, 4037		Ti XXII	TA	4547
Ti IV	W	4037			V I	AT
			CL	4235, 4236		
Ti V	AT	3693	Vanadium			
	CL	3693, 4197				
	EL	3693, 4197				
	IP	3693, 4671				
	PT	3693				
	W	3693, 4037				

2.2. Reference Numbers for Individual Spectra—Continued

V I—Continued			V XVII	CL	3591
	EL	4236		EL	3591
	Hfs	4551		W	3591
	W	4235, 4236			
V II	CL	4482	V XVIII	PT	3920
	EL	4482			
V III	PT	3871, 4664	V XX	AT	4043, 4230, 4330
				CL	4043, 4230, 4330
V IV	CL	4270		EL	4230
	PT	3871		PT	4230
				W	4043
V V	CL	3632, 3917	V XXI	CL	3840
	EL	3632, 3917			
	IP	3917	V XXII	TA	4653
	ND	3917		W	4136
	W	3632, 3917			
					Chromium
V VI	AT	3622	Cr ⁻	EL	4121
	CL	3622, 4197			
	EL	3622, 4197	Cr I	AT	3657
	IP	3622, 4671		CL	4170
	PT	3622		EL	4170
	W	3622		Hfs	4397
				ND	4170
V VII	CL	3633		PT	4170
	EL	3633		W	4170
	W	3633			
V VIII	CL	3633	Cr II	AT	4523
	EL	3633		W	4679
	W	3633			
V IX	CL	3633	Cr III	AT	4523
	EL	3633		CL	3878
	W	3633		EL	3878
				ND	3878
				PT	3878
				W	3878
V X	CL	3633			
	EL	3633	Cr IV	AT	4523
	W	3633		PT	4664
V XI	CL	3633	Cr V	AT	4523
	EL	3633			
	W	3633	Cr VI	AT	4523
V XIII	CL	3896	Cr VII	AT	3618
	EL	3896		CL	3618, 4197
	IP	4344		EL	3618, 4197
	ND	3896		IP	3618, 4671
	SF	4344		PT	3618
	W	3896		W	3618
V XIV	CL	3705, 4564	Cr VIII	CL	3633
	SF	4456		EL	3633
	W	3705		W	3633
V XVI	PT	3922	Cr IX	CL	3633
				EL	3633
				W	3633

2.2. Reference Numbers for Individual Spectra—Continued

Cr x	CL	3633, 4474
	EL	3633
	W	3633
Cr XI	CL	3633, 4434
	EL	3633, 4434
	W	3633
Cr XIV	CL	3896
	EL	3896
	IP	4344
	ND	3896
	SF	4344
	W	3896
Cr XV	CL	3705, 4436, 4564
	W	3705
Cr XVII	CL	3591
	EL	3591
	PT	3922, 4484
	W	3591
Cr XVIII	CL	3591
	EL	3591
	PT	4484
	W	3591
Cr XIX	PT	3920, 4484
Cr XXI	AT	4043, 4330
	CL	4043, 4330, 4518, 4571
	W	4043
Cr XXII	AT	3604
	CL	3840, 4518, 4571
	EL	3604
	TA	4547
	W	3604
Cr XXIII	TA	4547
	W	4136

Manganese

Mn I	AT	3644, 4415
	CL	4406
	EL	4406
	Hfs	3893, 4680
	IP	4406
	W	3644, 4406
Mn III	AT	4523
	CL	4479
	EL	4479
Mn IV	AT	4523
Mn V	AT	4523
	CL	4167, 4381, 4515
	EL	4167, 4515

Mn v-Continued

	ND	4167
	PT	3745, 4167, 4515
	W	4167

Mn VI	AT	4523
	CL	4164
	EL	4164
	ND	4164

Mn VIII	IP	4671
---------	----	------

Mn IX	CL	3633
	EL	3633
	W	3633

Mn X	CL	3633
	EL	3633
	W	3633

Mn XI	CL	3633, 4474
	EL	3633
	W	3633

Mn XII	CL	4434
	EL	4434

Mn XV	CL	3896
	EL	3896
	IP	4344
	ND	3896
	SF	4344
	W	3896

Mn XVI	CL	3705, 4564
	W	3705

Mn XVIII	PT	3922
----------	----	------

Mn XIX	CL	3591
	EL	3591
	W	3591

Mn XX	PT	3920
-------	----	------

Mn XXI	PT	4449
--------	----	------

Mn XXII	AT	4043, 4330
	CL	4043, 4518
	W	4043

Mn XXIII	AT	3604
	CL	3840, 4518
	EL	3604
	W	3604

Iron

Fe I	CL	3678, 3866, 3972, 4548
	EL	3866, 3972, 4548
	ND	3866, 3972

2.2. Reference Numbers for Individual Spectra—Continued

Fe I—Continued

PT 3866
W 3678, 3866, 3972, 4548

Fe II

CL 4009, 4196, 4433
EL 4009, 4433
IP 4433
W 4009, 4182, 4196, 4433, 4509

Fe III

AT 4523
CL 4511
W 4182

Fe IV

AT 4523
CL 4346
EL 4346
ND 4346

Fe V

AT 3625, 4523
CL 3625
EL 3625
PT 3625
W 3625

Fe VI

AT 4523
ND 3777
PT 4664
W 3777

Fe VIII

W 3748

Fe IX

CL 3619, 4014, 4197, 4463, 4474
EL 3619, 4197, 4345, 4463
IP 4671
W 3619, 3748, 4014

Fe X

AT 4396
CL 3633, 4014, 4032, 4190, 4463, 4470, 4474, 4538, 4674
EL 3633, 4190, 4345, 4463
PT 3651, 4190
W 3633, 3748, 4014, 4032

Fe XI

AT 4396
CL 3633, 4014, 4190, 4463, 4470, 4474, 4538, 4549, 4674
EL 3633, 3634, 4190, 4463
PT 4190
W 3633, 3634, 4014

Fe XII

AT 4331, 4396
CL 4014, 4331, 4463, 4470, 4474, 4549
EL 3634, 4331, 4463
PT 4331
W 3634, 3891, 4014, 4059

Fe XIII

AT 4331, 4396
CL 3634, 4014, 4331, 4434, 4463, 4474, 4538
EL 3634, 4434, 4463

Fe XIII—Continued

PT 3772, 4331, 4434
W 3634, 3778, 4014

Fe XIV

AT 4396
CL 4014, 4463, 4538
EL 4463
W 3748, 3748, 4014

Fe XV

AT 4396
CL 4014, 4434, 4463
EL 4463
PT 4434
W 3748, 4014

Fe XVI

AT 4302, 4396
CL 4014, 4185, 4463
EL 4185, 4463
IP 4344
SF 4344
W 3748, 4014

Fe XVII

CL 3630, 3705, 3764, 3784, 4014, 4211, 4436, 4564
EL 3630, 3784
IP 4008, 4485
SF 4456
W 3630, 3705, 3748, 3764, 3784, 4008, 4014, 4211, 4341

Fe XVIII

AT 4615
CL 3784, 3921, 4014, 4211, 4404, 4409, 4615
EL 3784, 4404
W 3748, 3784, 4014, 4211

Fe XIX

AT 3843, 4402
CL 3921, 4077, 4185, 4211, 4387, 4409, 4642
EL 4185
PT 3922, 4484
W 4211

Fe XX

AT 4402
CL 3591, 3635, 4211, 4387, 4450, 4642
EL 3591, 3635, 4450
PT 4484
W 3591, 3635, 4211

Fe XXI

AT 4403, 4583
CL 3635, 3865, 4211, 4387
EL 3635
PT 3920, 4484
W 3635, 3865, 4059, 4211, 4341

Fe XXII

AT 4230
CL 3635, 4230, 4409, 4518
EL 3635, 4230
PT 4230
W 3635

2.2. Reference Numbers for Individual Spectra—Continued

Fe XXIII AT 4043, 4230, 4330, 4637
 CL 4043, 4219, 4230, 4330, 4361, 4409,
 4518, 4571
 EL 4230, 4361
 PT 4230
 W 4043, 4219

Fe XXIV AT 3604, 3843, 4500
 CL 3840, 4014, 4219, 4361, 4518, 4571,
 4651
 EL 3604, 4361, 4651
 TA 4547
 W 3604, 4014, 4219

Fe XXV AT 4533
 CL 4361, 4409, 4651
 EL 4361, 4651
 TA 4547
 W 4136

Fe XXVI CL 4014, 4361
 EL 4361
 TA 4547
 W 4014

Cobalt

Co I CL 4288, 4548
 EL 4548
 Hfs 4165, 4288
 W 4548

Co II CL 4687
 EL 4687
 W 4509

Co III PT 4664

Co V CL 4698
 EL 4698
 PT 4698

Co VI CL 3631
 EL 3631
 ND 3631
 PT 3631
 W 3631

Co VII TE 4074

Co X CL 3619
 EL 3619
 W 3619

Co XIV CL 4434
 EL 4434

Co XVI CL 4434

Co XVII CL 4518
 IP 4344
 SF 4344

Co XVIII CL 3705
 W 3705

Co XIX AT 4615
 CL 4404, 4615
 EL 4404

Co XX CL 3591
 EL 3591
 W 3591

Co XXI CL 3591
 EL 3591
 W 3591

Co XXIV AT 4043, 4330
 CL 4043
 W 4043

Nickel

Ni⁻ EL 4121

Ni I CL 4548
 EL 4548
 Hfs 4174
 W 4548

Ni II W 4182

Ni III AT 4523
 PT 4664

Ni IV AT 4523
 CL 3732
 EL 3732
 ND 3732
 PT 3732
 W 3732

Ni V AT 4523
 CL 3739, 3912
 EL 3739, 3912
 IP 3912
 ND 3912
 PT 3739, 3912
 W 3739, 3912

Ni VI AT 4523

Ni VII CL 3621
 EL 3621
 ND 3621
 PT 3621
 W 3621

Ni VIII PT 3926
 TE 4074

Ni X W 3619

2.2. Reference Numbers for Individual Spectra—Continued

Ni xi	CL	3619, 4674	Cu iv	CL	3728	
	EL	3619, 4345		EL	3728	
	W	3619		PT	3728	
Ni xii	CL	4032, 4674	Cu v	CL	3881	
	EL	4345		EL	3881	
	PT	3651		ND	3881	
	W	4032		PT	3881	
				W	3881	
Ni xiii	CL	4474	Cu ix	PT	3926	
Ni xiv	CL	4474				
Ni xv	CL	4434	Cu x	W	3977	
	EL	4434	Cu xi	W	3977	
Ni xvi	CL	4699				
Ni xvii	CL	4434	Cu xii	CL	3619	
				EL	3619	
				W	3619, 3977	
Ni xviii	CL	4185	Cu xiii	W	3977	
	EL	4185				
	IP	4344	Cu xiv	W	3977	
	SF	4344				
Ni xix	CL	3705, 3784, 4436, 4564	Cu xvi	CL	4434, 4486	
	EL	3784		EL	4434	
	W	3705, 3784, 3905		W	4486	
	Ni xx	AT	4615	Cu xvii	CL	4486
CL		4404, 4615	W		4486	
EL		4404	Cu xviii	CL	4434, 4486	
				W	3748, 4486	
Ni xxi	AT	3843	Cu xix	CL	4185, 4486, 4665	
	CL	3591, 4077, 4185, 4387, 4640		EL	4185, 4665	
	EL	3591, 4185		Hfs	4173	
	W	3591		IP	4344, 4665	
Ni xxiii	AT	4638		SF	4344	
				W	3748, 4486	
Ni xxv	AT	4043, 4330	Cu xxi	AT	4615	
	CL	4043, 4571, 4699		CL	4185, 4404, 4615	
	W	4043		EL	4185, 4404	
		PT		3613		
Ni xxvi	AT	3604, 3843, 4500	Cu xxii	CL	4077, 4185, 4640	
	CL	4518, 4571		EL	4185	
	TE	3604		PT	3613	
Ni xxvii	AT	4533	Cu xxiii	CL	4185	
	CL	4699		EL	4185	
				PT	3613	
Copper						
Cu i	CL	4548	Cu xxvi	AT	4043, 4330	
	EL	4548		CL	4043	
	W	4548		W	4043	
Cu ii	W	4195		Cu xxviii	TA	4000
Cu iii	PT	3751				

2.2. Reference Numbers for Individual Spectra—Continued

Zinc		
Zn ⁻	EL	4044
Zn I	AT	4256
	CL	3641, 4256
	EL	3641, 3867, 4256
	Hfs	3906
	IP	3641
	W	3641, 3798
Zn III	AT	4688
Zn X	PT	3926
Zn XVII	CL	4486
	PT	4434
	W	4486
Zn XVIII	CL	4486
	W	4486
Zn XIX	CL	4075, 4434, 4486
	PT	4434
	W	4486
Zn XX	CL	4075, 4185, 4486, 4665
	EL	4185, 4665
	IP	4344, 4665
	SF	4344
	W	4486
Zn XXII	AT	4615
	CL	3613, 4185, 4185, 4286, 4404, 4615
	EL	3613, 4185, 4185, 4286, 4404
	W	3613
Zn XXIII	AT	4113
	CL	3613, 4077, 4185
	EL	3613, 4185
	W	3613
Zn XXIV	CL	3613, 4185
	EL	3613, 4185
	W	3613
Zn XXVI	PT	4449
Zn XXVII	AT	4043, 4330
	CL	4043
	W	4043

Gallium

Ga ⁻	EL	4120
Ga I	AT	4413
	CL	4049
	EL	4049
	IP	4152
	ND	4049, 4413
	W	4049

Ga II	AT	4645
	CL	4560
	EL	4560
Ga IV	CL	3607
	EL	3607
	W	3607
Ga XXI	CL	4185, 4665
	EL	4185, 4665
	IP	4344, 4665
	SF	4344
Ga XXIII	CL	4185
	EL	4185
	PT	3613
Ga XXIV	PT	3613

Germanium

Ge ⁻	EL	4120
Ge I	CL	3935, 4118
	EL	3935, 4118
	IP	3935
	ND	3935, 4118
	PT	3935
	W	3935
Ge V	CL	3608
	EL	3608
	W	3608
Ge XIII	W	3913
Ge XIV	W	3913
Ge XIX	W	3913
Ge XXII	CL	4185, 4665
	EL	4185, 4665
	IP	4344, 4665
	SF	4344
Ge XXIV	AT	4615
	CL	3613, 4185, 4286, 4404, 4615
	EL	3613, 4185, 4286, 4404
	W	3613
Ge XXV	CL	3613
	EL	3613
	W	3613
Ge XXIX	AT	4043
	CL	4043
	W	4043

Arsenic

As ⁻	EL	4121
-----------------	----	------

2.2. Reference Numbers for Individual Spectra—Continued

As XXIII	CL	4185, 4665	Br VI	AT	4645
	EL	4185, 4665	Br XXIV	CL	4185
	IP	4344, 4665		EL	4185
	SF	4344			
As XXV	CL	4185	Br XXV	CL	4665
	EL	4185		EL	4665
				IP	4344, 4665
				SF	4344
		Selenium	Br XXXI	PT	4449
Se I	CL	4168			
	W	4048, 4124, 4168			Krypton
Se II	CL	4076, 4090	Kr I	CL	3740, 3802, 3931, 3932, 3979, 4503, 4541, 4676, 4678
	EL	4076		EL	3740, 3788, 3802, 3931, 3932, 3940, 4177, 4503, 4676, 4678
	W	4076, 4090		Hfs	4233
Se III	W	3961		IP	4676
Se IV	W	3961		IS	3846, 4063, 4107, 4159, 4171, 4213, 4233, 4352, 4573
Se V	W	3961		ND	3802
Se VI	EL	4300		PT	4395
	IP	4300		W	3740, 3931, 3932, 3979, 4021
	ND	4300			
	W	3961, 4300	Kr II	EL	3956
Se VII	CL	3961		IP	3824
	EL	3961		ND	3945
	ND	3961		PT	4056
	W	3771, 3961	Kr III	ND	3945
Se VIII	CL	3771		W	3684
	EL	3771	Kr IV	CL	3874
	ND	3771		ND	3945
	PT	3771		W	3684, 4259
	W	3771	Kr V	CL	3874
Se XXIII	W	4085		ND	3945
Se XXIV	CL	4665		W	4259
	EL	4665	Kr VI	CL	3609, 3874
	IP	4344		EL	3609
	SF	4344	Kr VII	CL	3609, 3874, 4204
	W	4085		W	4204
Se XXV	W	4085	Kr VIII	CL	3609, 4204
Se XXVI	AT	4615	Kr IX	CL	4204
	CL	4286, 4404, 4615	Kr X	CL	4204
	EL	4286, 4404	Kr XI	CL	4204
Se XXXI	AT	4043	Kr XII	CL	4204
	CL	4043	Kr XIII	CL	4204
	W	4043	Kr XXV	CL	4219
				W	4219, 4566
		Bromine			
Br IV	W	4258			
Br V	ND	3955			

2.2. Reference Numbers for Individual Spectra—Continued

Kr xxvi AT 4302
CL 4219, 4566
W 4219

Kr xxvii CL 4566

Kr xxxiii AT 4637
CL 4624

Kr xxxiv CL 4624

Kr xxxv CL 4065
EL 4065

Rubidium

Rb i AT 3583, 3836, 3861, 4493, 4527
CL 3583, 4240, 4569, 4620, 4693
EL 3583, 3714, 3790, 3857, 3952, 4058,
4069, 4240, 4266, 4350A, 4493
Hfs 3747, 3753, 3773, 3787A, 3833, 3861,
3872, 3908, 3997A, 4001, 4017, 4018,
4035, 4328, 4481
IS 3747, 3763, 4126, 4366
ND 3583, 4493
PT 3908, 4493
SE 3668, 3861, 4005
TA 4455
W 3583, 3850, 4028, 4498
ZE 3861, 4040, 4055, 4198, 4358A

Rb ii AT 3583
Hfs 3990

Rb iii AT 3583
CL 3713
EL 3713
W 3713
ZE 3713

Rb viii CL 4088
W 4088

Rb ix CL 4088
W 4088

Rb xxvi W 4566

Rb xxvii CL 4566

Rb xxviii CL 4566

Strontium

Sr i AT 4163
CL 3889, 3942, 4278, 4447, 4557, 4648
EL 3889, 3933, 3941, 3942, 4278, 4447,
4469, 4542, 4557, 4603, 4648, 4654
Hfs 3990, 4245
IP 4447

Sr I—Continued

ND 3942
PT 3601, 3942
TA 4439, 4469, 4473
W 3889, 3933, 3942, 4603
ZE 3553, 4278

Sr ii CL 4648
EL 3933, 4268, 4603, 4648, 4654
W 3933, 4603

Sr iv AT 3647
CL 3647, 4311
EL 3647, 4311
IP 3647, 4311
PT 3647, 4311
W 3647

Sr ix CL 4088
W 4088

Sr x CL 4088
W 4088

Sr xxvii W 4566

Sr xxviii CL 4566

Sr xxix CL 4566

Yttrium

Y i CL 4443
EL 4443
IP 4592
PT 4443
W 4443

Y ii CL 3601
EL 3601
IP 3601
PT 3601
W 3601

Y iii CL 4586
EL 4586

Y vi AT 3611
CL 3611, 4047, 4378
EL 3611, 4047, 4378
ND 3611
W 3611

Y vii CL 4087, 4378
EL 4087, 4378

Y viii CL 4087, 4378
EL 4087, 4378

2.2. Reference Numbers for Individual Spectra—Continued

Y x CL 4088
W 4088

Y XI CL 4088
W 4088

Y XXVIII W 4566

Y XXIX CL 4566

Y XXX CL 4566

Y XXXI CL 4329
EL 4329

Zirconium

Zr I Hfs 4285
IP 4592
PT 4285
ZE 3887

Zr III PT 3601

Zr IV CL 4586
EL 4586

Zr V AT 4594
CL 4594
EL 4594
IP 4594

Zr VII AT 3652
CL 3652, 4047, 4378
EL 3652, 4047, 4378
W 3652

Zr VIII CL 4087, 4378
EL 4087, 4378

Zr IX CL 4087, 4378
EL 4087, 4378

Zr XI AT 4342
CL 4088
W 4088

Zr XIII AT 4417

Zr XV AT 4342

Zr XXIX W 4566

Zr XXX CL 4566

Zr XXXI CL 4566

Zr XXXVI PT 4449

Niobium

Nb I Hfs 3569, 3570
IP 4592
PT 3570
ZE 3569

Nb IV PT 3601

Nb V CL 4586
EL 4586

Nb VIII AT 3652
CL 3652, 4047, 4378
EL 3652, 4047, 4378
W 3652

Nb IX CL 4087, 4378
EL 4087, 4378

Nb X CL 4087, 4378
EL 4087, 4378

Nb XII CL 4088
W 4088

Nb XXXII CL 4566

Molybdenum

Mo I AT 4133
Hfs 4448, 4471
IP 4592
IS 4133, 4471
ZE 4448

Mo II AT 4133
IS 4133

Mo VI CL 4586
EL 4586

Mo VIII CL 3646
EL 3646
IP 3646
W 3646

Mo IX AT 3652
CL 3652, 4047, 4378, 4577
EL 3652, 4047, 4378, 4577
IP 4577
W 3652

Mo X CL 4087, 4378
EL 4087, 4378

Mo XI CL 4087, 4378
EL 4087, 4378

Mo XIII AT 4342, 4645
CL 4088, 4662
W 4088

2.2. Reference Numbers for Individual Spectra—Continued

Mo XIV	AT	4593
	CL	4088, 4234, 4593, 4662
	EL	4234, 4593
	IP	4234, 4593
	W	4088
Mo XV	AT	4417
	CL	4176, 4257
	EL	4257
	ND	4360
	W	4257
Mo XVI	AT	4145
	CL	4176, 4257
	EL	4257
	W	4257
Mo XVII	AT	4145, 4342
	CL	4176, 4257
	EL	4257
	W	4257
Mo XVIII	AT	4145
	CL	4176
Mo XIX	AT	4145
	CL	4176
Mo XX	CL	4176
Mo XXI	CL	4176
Mo XXII	CL	4176
Mo XXIII	CL	4176
Mo XXIV	CL	4176
Mo XXV	CL	4176
Mo XXVI	CL	4176
Mo XXVII	CL	4176
Mo XXVIII	CL	4176
	CL	4176
Mo XXIX	CL	4176
Mo XXX	CL	4109, 4176, 4257, 4257
	EL	4109, 4257, 4257
	ND	4109
	W	4257, 4257, 4566
Mo XXXI	CL	4109, 4176, 4219, 4257, 4566
	EL	4109, 4257
	ND	4109
	PT	4333
	W	4219, 4257, 4566
Mo XXXII	AT	4302

Mo XXXII—Continued

	CL	4109, 4176, 4219, 4257, 4566
	EL	4109, 4257
	IP	4344
	ND	4109
	PT	4333
	SF	4344
	W	4219, 4257
Mo XXXIII	CL	3863, 4176, 4333, 4566
	EL	3863, 4333
	ND	3863
	W	3863
Mo XXXIV	CL	4329
	EL	4329
Mo XXXIX	AT	4637
Mo XL	CL	4281
	W	4281
Mo XLI	CL	4281

Technetium

Tc I	AT	4097
	Hfs	4097
	IP	4592

Ruthenium

Ru I	Hfs	4045
	IP	4592

Rhodium

Rh I	IP	4592
Rh XLI	PT	4449

Palladium

Pd I	Hfs	3855
	IP	4592
	IS	3855
Pd XVIII	EL	4290

Silver

Ag I	AT	4338, 4558
	CL	4105, 4338, 4558, 4677
	EL	4105, 4338, 4558, 4677
	IP	4105
	IS	4242
	ND	4105, 4338
	W	4338, 4677
Ag II	CL	4027, 4248, 4261, 4269
	W	4027, 4248, 4261

2.2. Reference Numbers for Individual Spectra—Continued

Ag IV	CL	3703	Tin		
	EL	3703			
	W	3703			
Ag XIX	EL	4290			
Ag XXXVIII	CL	3863			
	EL	3863			
	ND	3863			
	TA	4000			
	W	3863			
Cadmium					
Cd ⁻	EL	4044			
Cd I	AT	4305			
	CL	3641, 3757, 3758, 4305, 4376, 4620			
	EL	3641, 3867, 4305, 4376			
	Hfs	3559, 3894, 3948			
	IP	3641			
	IS	3653, 3679, 3894, 4383			
	W	3641, 3757, 3758, 3864, 4376			
Cd II	Hfs	3894			
	IS	3563, 3653, 3894			
	ZE	4429			
Cd IV	CL	4099			
	EL	4099			
	ND	4099			
	PT	4099			
Cd XX	EL	4290			
Indium					
In ⁻	EL	4120			
In I	AT	3765, 4413			
	CL	3765, 4495			
	EL	3765, 4495			
	IS	4459			
	ND	3765, 4413			
	W	3765, 4495			
In III	CL	4327			
	EL	4327			
	IP	4327			
In V	CL	3770, 4201, 4316			
	EL	3770, 4201, 4316			
	IP	4316			
	ND	3770, 4201, 4316			
	PT	3770, 4201, 4316			
	W	3770, 4201			
In VI	CL	3755			
	EL	3755			
	W	3755			
In XXI	EL	4290			
			Sn ⁻	EL	4120
			Sn I	CL	3779, 3936, 4118
				EL	3936, 4118
				Hfs	4711
				IP	3936
				ND	3936, 4118
				W	3779, 3936
			Sn II	CL	3779
				W	3779
			Sn V	CL	4099
				EL	4099
				ND	4099
				PT	4099
			Sn VI	CL	4099, 4199
				EL	4099, 4199, 4299
				ND	4099, 4199
				PT	4099, 4199
				W	4199
			Sn XLVI	PT	4449
Antimony					
			Sb ⁻	EL	4121
			Sb I	EL	3794
				Hfs	3794, 4407
				PT	3794
			Sb VI	CL	4099, 4601
				EL	4099, 4601
				IP	4601
				ND	4099
				PT	4099
			Sb VII	AT	4601
				CL	4099, 4601
				EL	4099, 4299, 4601
				ND	4099
				PT	4099, 4601
Tellurium					
			Te ⁻	EL	4121
			Te I	CL	3680, 3682
				EL	3682
				PT	3682
				W	3682
				ZE	3680, 3682
			Te II	CL	4089
				EL	4089
				IS	4303
				W	4089

2.2. Reference Numbers for Individual Spectra—Continued

Te VII CL 4601
 EL 4601
 IP 4601

Te VIII AT 4601
 CL 4601
 EL 4601
 PT 4601

Iodine

I I CL 3674, 4625
 EL 3674
 Hfs 3674
 PT 3674
 W 3674

I II CL 3680
 EL 3680
 ZE 3680

I VI CL 4639

I XXIV CL 3580
 EL 3580
 W 3580

I XXV CL 3580
 EL 3580
 W 3580

I XXVI CL 3580
 EL 3580
 W 3580

Xenon

Xe I CL 3931, 3979, 4678
 EL 3582, 3931, 3940, 4154, 4177, 4678
 Hfs 3588, 3700, 4630
 IS 4022, 4039, 4297, 4454
 PT 4395
 W 3582, 3819, 3931, 3979, 4021
 ZE 4629

Xe II CL 4318
 EL 3956, 4112, 4428
 Hfs 4380
 IP 3824
 ND 4006, 4419, 4428
 PT 4419, 4428
 ZE 4428

Xe III AT 4660
 CL 3766, 4660
 EL 3766, 4660
 IP 4660
 ND 4660
 W 3684, 3766, 4225, 4254

Xe IV W 3684, 4225, 4254

Xe XXV CL 4219
 W 4219

Xe XXVI CL 4219
 W 4219

Xe XLIV AT 4302

Cesium

Cs I AT 3825, 3859, 4265, 4528, 4544, 4559
 CL 3560, 3585, 3596, 4051, 4375, 4620
 EL 3585, 3733, 3953, 4051, 4241, 4271,
 4308, 4310, 4375
 Hfs 3560, 3572, 3589, 3596, 3616, 3636,
 3637, 3638, 3753, 3756, 3787A, 3833,
 3842, 3859, 3872, 3997A, 4001, 4108,
 4237, 4265, 4287, 4422, 4460, 4481,
 4519, 4545, 4691
 IS 4356, 4422, 4519, 4545, 4606
 ND 4544
 PT 3789
 QF 3827
 SE 3668, 3799, 3815, 3859, 4005, 4375
 TA 4540
 W 3560, 3585, 3596, 3663, 3756, 4051
 ZE 3616, 3636, 3637, 3638, 3842, 3859,
 4309, 4530, 4632

Cs II AT 3649
 CL 3649
 EL 3649
 W 3649
 ZE 3649, 4309

Cs III CL 3749
 EL 3749
 IP 3749
 PT 3749
 W 3749

Cs IX CL 4178
 EL 4178
 ND 4178

Cs X CL 4178
 EL 4178
 ND 4178

Barium

Ba I AT 3822, 3886, 4313, 4559, 4610
 CL 3626, 3662, 3701, 4030, 4295, 4414,
 4444, 4559, 4682
 EL 3626, 3701, 3873, 4030, 4132, 4295,
 4394, 4414, 4444, 4461, 4542, 4559
 Hfs 4019, 4127, 4444, 4685
 IP 4542
 IS 4611
 ND 4030, 4610

2.2. Reference Numbers for Individual Spectra—Continued

Ba I—Continued			La XII	CL	4178
	PT	4461, 4542		EL	4178
	SE	4279		ND	4178
	TA	4410, 4439, 4476, 4605			
	W	3626, 3662, 3701, 4030, 4559			
	ZE	3553, 3873			
Cerium					
Ba II	AT	3584, 4274, 4556	Ce I	AT	3858
	CL	3662, 3726, 3727		EL	3915, 3991
	EL	3564, 3726, 3727, 3821, 4394		IP	4277, 4321, 4514
	Hfs	3774, 3990, 4019, 4220, 4275, 4658		IS	3656, 3852
	IS	3965, 4220, 4274	Ce II	AT	3858, 4388
	W	3662, 3726, 3727		CL	3923
	ZE	3841		EL	3923
Ba III	CL	3667		IS	3858, 4388
	EL	3667		ND	3923
	IP	3667		W	3923
	ND	3667		ZE	3923
	W	3892	Ce XII	CL	4178
Ba IV	CL	3749		EL	4178
	EL	3749		ND	4178
	IP	3749	Ce XIII	CL	4178
	PT	3749		EL	4178
	W	3749		ND	4178
Ba X	CL	4178	Praseodymium		
	EL	4178	Pr I	Hfs	3639
	ND	4178		IP	4514
Ba XI	CL	4178		ZE	3639
	EL	4178	Pr III	AT	4536
	ND	4178		PT	4536
Lanthanum					
La I	AT	4591	Pr IV	Hfs	3660, 3811
	EL	3730, 3915		ZE	3659, 3660
	Hfs	4116, 4337	Pr V	IP	4095
	IP	4592	Pr XIII	CL	4178
	ND	3730		EL	4178
	PT	3730		ND	4178
	ZE	3730	Pr XIV	CL	4178
				EL	4178
La IV	AT	4562		ND	4178
	CL	4562	Neodymium		
	EL	4562	Nd I	CL	4038
	W	4562		EL	3809
La V	CL	3749		IP	4277, 4321, 4514
	EL	3749		IS	4038, 4323, 4382
	IP	3749		ZE	3809
	PT	3749	Nd II	CL	4038
	W	3749		IS	4038, 4323, 4382
La XI	CL	4178		PT	4390
	EL	4178			
	ND	4178			

2.2. Reference Numbers for Individual Spectra—Continued

Nd III	CL	3973
	EL	3973
	W	3973
Nd IV	CL	3578
	EL	3578, 4502
	PT	3578, 4502
	SE	4502
	W	3578
Nd V	IP	4095
Nd XIV	CL	4178
	EL	4178
	ND	4178
Nd XV	CL	4178
	EL	4178
	ND	4178
Promethium		
Pm I	IP	4277, 4514
Pm IV	AT	4096
	CL	3574
	EL	3574
	PT	3574
	W	3574
Pm V	IP	4095
Samarium		
Sm I	CL	4187
	EL	4132
	Hfs	4229, 4552
	IP	4277, 4321, 4514
	IS	4180, 4229, 4253, 4552, 4570
	PT	4253
	W	4153
Sm V	IP	4095
Sm XVI	CL	4178
	EL	4178
	ND	4178
Europium		
Eu I	AT	3792
	CL	3780, 3792, 3849, 4666
	EL	3780, 3792, 3849, 4132, 4666
	Hfs	3709, 4704
	IP	4277, 4321, 4514
	IS	3914, 4704
	ND	3780, 3792, 3849
	W	3780, 3792, 3849, 4666
	ZE	3780
Eu III	AT	3818
	CL	4115

Eu III—Continued		
	EL	4115
	PT	4115
Gadolinium		
Gd I	IP	4277, 4321, 4464, 4514
	IS	3870, 4138, 4382, 4708
	ND	4708
Gd II	Hfs	4555
	IS	3870, 4382, 4708
	ND	4708
Gd IV	AT	3818
	CL	4115
	EL	4115
	PT	4115
Gd V	IP	4095
Terbium		
Tb I	CL	4656
	Hfs	4656
	IP	4277, 4321, 4514
	ND	4656
	PT	4150
Tb II	CL	4487
	EL	4487
	ZE	4487
Tb IV	CL	3689
	EL	3689
	IP	3689
	PT	3689
	W	3689
Tb V	IP	4095
Dysprosium		
Dy I	Hfs	3998, 4151, 4252, 4412
	IP	4277, 4321, 4514
	IS	3550, 3782, 4252
Dy II	EL	3743
	IS	4280
	ND	3743
	PT	3743, 4280, 4390
	ZE	3743
Dy V	IP	4095
Dy XXXIX	CL	3863
	EL	3863
	ND	3863
	W	3863

2.2. Reference Numbers for Individual Spectra—Continued

Ho I	CL	4202	Yb III	CL	3654
	EL	4202		IP	3654
	Hfs	4202		W	3654, 3719, 4226, 4443
	IP	4277, 4321, 4514			
	ND	4202			
	PT	4228			
	W	3800, 4202			
Ho II	CL	3742	Yb IV	CL	3715, 4317
	EL	3742, 4390		EL	3715, 4317
	ND	3742		PT	4317
	PT	3742, 4390		W	3715, 4317
	W	3742, 3800	Yb V	IP	4095
Ho III	EL	3962	Lutetium		
	ND	3962	Lu I	CL	4320
	PT	3962		EL	4320
Ho IV	SE	3702		Hfs	4418, 4636
				IS	4635
Ho V	IP	4095		ND	4320
				PT	4389
Erbium				W	4320
Er I	CL	3550	Lu II	AT	3672
	IP	4277, 4321, 4514		PT	4504
	IS	3550	Lu III	CL	3654, 4597
Er II	PT	4390		EL	4597
				IP	3654
Er V	IP	4095		W	3654
			Lu IV	CL	3654
Thulium				IP	3654
Tm I	AT	4591, 4643		W	3654
	Hfs	4148	Lu V	CL	4435
	IP	4277		EL	4435
Tm II	AT	4591		IP	4095
	PT	4390		PT	4435
Tm IV	CL	3615	Hafnium		
	EL	3615	Hf I	CL	3620
	PT	3615		EL	3620
	W	3615		Hfs	4149
Tm V	IP	4095		IP	3620, 4592
				PT	4389
Ytterbium				W	3620
Yb I	AT	3672		ZE	3620
	CL	3550, 3719, 4262, 4534	Hf II	PT	4504
	EL	3946, 4132, 4262, 4534, 4535, 4585			
	Hfs	3969, 3970	Hf III	AT	3883
	IP	4262, 4277			
	IS	3550, 4126	Hf IV	CL	3654, 4597
	ND	3550, 3946		EL	4597
	PT	4534		IP	3654
	W	3706, 3719, 4226, 4262, 4335, 4363		W	3654
	ZE	4262			

2.2. Reference Numbers for Individual Spectra—Continued

Hf v CL 3654, 3694
EL 3694
IP 3654, 4095
W 3654, 3694

Tantalum

Ta I IP 4592
PT 4389

Ta II CL 4504
EL 4504
PT 4504

Ta IV CL 4307
EL 4307
PT 4307

Ta v CL 3654, 3695, 4597
EL 3695, 4597
Hfs 3695
IP 3654, 3695, 4095
W 3654, 3695

Ta VI CL 3654
IP 3654
W 3654

Ta XLVI CL 4146
W 4146

Ta XLVII CL 4146
W 4146

Tungsten

W I Hfs 4619
IP 4592
IS 4374, 4696
ZE 4619

W II PT 4504

W VI CL 3654, 4597
EL 4597
IP 3654, 3694
W 3654

W VII CL 3654, 3694
EL 3694
IP 3654, 3694
PT 3694
W 3654, 3694

W XX TA 4430

W XXI TA 4430, 4663

W XXII TA 4430

W XXIII TA 4430

W XXIV TA 4430

W XXV TA 4430, 4663

W XXVI TA 4430

W XXVII TA 4430

W XXVIII TA 4430

W XXIX TA 4430, 4663

W XXX TA 4430

W XXXI TA 4131, 4430

W XXXII TA 4131, 4430

W XXXIII TA 4131, 4430

W XXXIV TA 4131, 4430, 4663

W XXXV TA 4131, 4430

W XLV AT 4645

W XLVII CL 3863
EL 3863
ND 3863
W 3863

W LXIV AT 4302

Rhenium

Re I Hfs 4618
IP 4592
IS 4618
ND 4618
PT 4389

Re II PT 4504

Re VII CL 3654, 3683, 3704, 4597
EL 3683, 3704, 4597
Hfs 3704
IP 3654, 3683, 3704
W 3654, 3683, 3704

Re VIII CL 3654
IP 3654
W 3654

Osmium

Os I IP 4592

Os VIII CL 3654, 4597
EL 4597
IP 3654
W 3654

2.2. Reference Numbers for Individual Spectra—Continued

Os IX	CL	3654	Au XXVI	TA	4663
	IP	3654	Au XXX	TA	4663
	W	3654	Au XXXIV	TA	4663
Iridium					
Ir I	Hfs	4284	Au XXXIX	TA	4663
	IP	4592	Au LIJ	CL	3863
	PT	4284		EL	3863
	ZE	4284		ND	3863
		TA		4000	
Ir II	CL	4457	W	3863	
	EL	4457			
Ir IX	CL	3654	Au LXIX	AT	4302
	IP	3654	Mercury		
	W	3654			
Ir X	CL	3654	Hg ⁻	EL	4044
	IP	3654	Hg I	CL	4160
	W	3654		EL	4010, 4160
Platinum					
Pt I	Hfs	3677		Hfs	3581, 3687, 3734, 3752, 3904, 4160, 4161, 4655
	IP	4592		IS	3665, 3687, 3734, 4052, 4160, 4161, 4525, 4655
	IS	3677		PT	4161
	W	4082		W	4160, 4162
Pt II	PT	4504	ZE	3664, 3710, 3903, 4143	
	W	4082			
Pt X	CL	3654	Hg II	Hfs	4007, 4306, 4372
	IP	3654	IS	4007	
	W	3654			
Pt XI	CL	3654	Hg XII	CL	3654
	IP	3654	IP	3654	
	W	3654	W	3654	
Pt LI	CL	3654	Hg XIII	CL	3654
	IP	3654	IP	3654	
	W	3654	W	3654	
			Thallium		
Au I	CL	4231	Tl ⁻	EL	4120
	EL	4231	Tl I	AT	4264, 4413
	IP	4231		CL	3645, 3884, 4123, 4413
	W	4231		EL	3645, 3884, 4117, 4413
Gold					
Au II	PT	4504		Hfs	3655, 3898, 4064, 4264
				IS	3655, 3898
Au XI	CL	3654		ND	4413, 4622
	IP	3654	PT	4117	
	W	3654	W	3645, 3884, 3999	
Au XII	CL	3654	ZE	4530	
	IP	3654	Tl II	CL	3692
	W	3654			
		Tl XIII		CL	3654
			IP	3654	
			W	3654	

2.2. Reference Numbers for Individual Spectra—Continued

[illegible]

2.2. Reference Numbers for Individual Spectra—Continued

Np I—Continued			Cm I—Continued		
	ND	3793, 3862		W	3587, 3919, 3927
	PT	3862		ZE	3919, 3927
	W	3793			
	ZE	3793, 3862			
Np IV			Cm II		
	AT	4508		CL	3587, 3919
	PT	4508		EL	3587
	W	3571		IS	3919
				W	3587, 3919
				ZE	3919
Np V			Cm IV		
	AT	4508		CL	3573
	PT	4508		EL	3573
	W	3571		PT	3573
				W	3573
Np VI					
	AT	4508	Berkelium		
	PT	4508			
Np VII			Bk I		
	AT	4508		CL	3610, 4703
	PT	4508		EL	3610, 4703
Plutonium				Hfs	3610, 4703
				W	3610, 4703
				ZE	4703
Pu	W	3587	Bk II		
Pu IV				CL	3610, 4703
	AT	4508		EL	3610, 4703
	PT	4508		Hfs	3610, 4703
Pu V				W	3610, 4703
	AT	4508		ZE	4703
	PT	4508	Californium		
Pu VI			Cf I		
	AT	4508		CL	3605
	PT	4508		EL	3605
Pu VII				Hfs	3605
	AT	4508		W	3605
	PT	4508	Cf II		
Americium				CL	3605
				EL	3605
				Hfs	3605
				W	3605
Am III	AT	4508			
	PT	4508			
Am IV					
	AT	4508			
	PT	4508			
Am V					
	AT	4508			
	PT	4508			
Am VI					
	AT	4508			
	PT	4508			
Am VII					
	AT	4508			
	PT	4508			
Am VIII					
	AT	4508			
	PT	4508			
Curium					
Cm I					
	CL	3587, 3919, 3927			
	EL	3587, 3927			
	IS	3587, 3919, 3927			
	ND	3927, 4223			

3. Bibliography Ordered by Reference Numbers

3550. Miller, G. E.; Ross, J. S.; J. Opt. Soc. Am. **66**(6), 585-589 (1976).
Isotope Shifts in the Arc Spectra of Dysprosium, Erbium, and Ytterbium.
Dy I: IS
Er I: CL IS
Yb I: ND CL IS
3551. Kononov, E. Ya.; Koshelev, K. N.; Podobedova, L. I.; Churilov, S. S.; Opt. Spectrosc. (USSR) **40**(2), 121-123 (1976).
Spectra of Calcium in the Vacuum Ultraviolet 2: Ca XV and Ca XIV.
Ca XIV, XV: EL CL W
Ca X: CL W
Ca XVI, XVII: W
3552. Zalubas, R.; J. Res. Nat. Bur. Stand. (U.S.) **80A**(2), 221-358 (1976).
Energy Levels, Classified Lines, and Zeeman Effect of Neutral Thorium.
Th I: EL CL W ZE
3553. Aydin, R.; Aldenhoven, R.; Degener, L.; Gebauer, H.; Meisel, G.; Z. Phys. A **273**(3), 233-238 (1975).
Precision Measurement of the g_J Factors of Metastable Atomic States of ^{88}Sr and ^{138}Ba Using the Atomic Beam Magnetic Resonance Method.
Sr I, Ba I: ZE
3554. Barrette, L.; Irwin, D. J. G.; Drouin, R.; Phys. Scr. **12**(3), 113-115 (1975).
New Identifications and Lifetime Measurements in Ne VIII.
Ne VIII: CL W
Ne VII-X: W
3555. Bauche-Arnoult, C.; Labarthe, J. J.; J. Phys. (Paris), Lett. **36**(12), 285-287 (1975).
Comparison Between Magnetic-Hyperfine-Structure Parameters in Sc I and Ti I.
Sc I, Ti I: Hfs
3556. Belin, G.; Holmgren, L.; Lindgren, I.; Svanberg, S.; Phys. Scr. **12**(5), 287-294 (1975).
Hyperfine Interaction, Zeeman, and Stark Effects for Excited States in Potassium.
K I: ZE SE Hfs
3557. Beyer, H. J.; Kleinpopp, H.; J. Phys. B **8**(15), 2449-2455 (1975).
Measurement of the Fine-Structure Intervals S-D and S-F in He^+ , $n = 5$.
He II: EL
3558. Beyer, H. J.; Kollath, K. J.; J. Phys. B **8**(14), L326-L330 (1975).
Measurement of the $n^1\text{D}-n^3\text{D}$ Intervals in Helium, $n = 8$ to 11.
He I: EL
3559. Bignon, M. C.; Chantepie, M.; Cojan, J. L.; Landais, J.; J. Phys. (Paris) **36**(11), 1071-1074 (1975).
Structure hyperfine du niveau 5^1D_2 des isotopes ^{111}Cd et ^{113}Cd .
Cd I: Hfs
3560. Bouchiat, M. A.; Pottier, L.; J. Phys. (Paris), Lett. **36**(7-8), 189-192 (1975).
Observation of the $6\text{S}_{1/2}-7\text{S}_{1/2}$ Single-Photon Transition of Cesium Induced by an External d.c. Electric Field.
Cs I: CL W Hfs
3561. Bradley, D. J.; Ewart, P.; Nicholas, J. V.; Shaw, J. R. D.; J. Phys. B **8**(18), 2934-2938 (1975).
Excited-State Absorption Spectroscopy of Alkaline Earths. II. Magnesium Arc Spectra.
Mg I: EL CL W
3562. Newton, G.; Unsworth, P. J.; Andrews, D. A.; J. Phys. B **8**(18), 2928-2933 (1975).
Observation of Fine-Structure Resonances in Atomic Hydrogen by the Method of Spatially Periodic Fields and Variable Beam Velocity.
H I: EL Hfs
3563. Brechignac, C.; Phys. Scr. **12**(4), 230-234 (1975).
Etude des écarts isotopiques de la raie laser $\lambda = 4416 \text{ \AA}$ du Cd II.
Cd II: IS
3564. Brehm, B.; Hoefler, K.; Int. J. Mass Spectrom. Ion Phys. **17**(4), 371-378 (1975).
The 21.22-eV Photoelectron Spectrum of Barium.
Ba II: EL
3565. Brillet, W. L.; Artru, M. C.; J. Opt. Soc. Am. **65**(12), 1399-1403 (1975).
The $2p^4$, $4f$, $5f$, and $5g$ Configurations of Quadruply Ionized Aluminum (Al V).
Al V: EL CL W IP PT AT
Al VI: EL CL W
3566. Bruch, R.; Paul, G.; Andrae, J.; Phys. Rev. A **12**(5), 1808-1824 (1975).
Autoionization of Foil-Excited States in Li I and Li II.
Li I, II: EL PT AT
3567. Bruch, R.; Paul, G.; Andrae, J.; J. Phys. B **8**(11), L253-L258 (1975).
Metastable Autoionizing Three- and Four-Electron States in Beryllium.
Be I: EL
3568. Buchet, J. P.; Druetta, M.; J. Opt. Soc. Am. **65**(9), 991-994 (1975).
Beam-Foil Spectroscopy of Neon Between 80 and $350 \text{ \AA}$.
Ne V: EL CL W
Ne III, IV, VI, VII: W
3569. Buttgenbach, S.; Dicke, R.; Gebauer, H.; Herschel, M.; Meisel, G.; Z. Phys. A **275**(3), 193-196 (1975).
Hyperfine Structure of Nine Levels in Two Configurations of ^{93}Nb . I. Experimental.
Nb I: ZE Hfs
3570. Buttgenbach, S.; Dicke, R.; Z. Phys. A **275**(3), 197-202 (1975).
Hyperfine Structure of Nine Levels in Two Configurations of ^{93}Nb . II. Theoretical Analysis.
Nb I: Hfs PT
3571. Bullock, J. I.; King, M. E.; J. Chem. Soc., Dalton Trans. (13), 1360-1364 (1975).
Chemistry of the Trivalent Actinoids. Part. IV. Nephelauxetic Effects as a Guide to Complex Formation for Uranium (III) and Neptunium (III).
U IV, V, Np IV, V: (W)
3572. Bulos, B. R.; Gupta, R.; Moe, G.; Tsekeris, P.; Phys. Lett. A **55**(7), 407-408 (1976).
Hyperfine Structure Determination of the $7^2\text{D}_{5/2}$ State of ^{133}Cs .
Cs I: Hfs
3573. Carnall, W. T.; Rajnak, K.; J. Chem. Phys. **63**(8), 3510-3514 (1975).

3. Bibliography Ordered by Reference Numbers—Continued

- Electronic Energy Level and Intensity Correlations in the Spectra of the Trivalent Actinide Aquo Ions. II. Cm^{3+}
Cm IV: (EL) (CL) (W) PT
3574. Carnall, W. T.; Crosswhite, H.; Crosswhite, H. M.; Conway, J. G.; J. Chem. Phys. **64**(9), 3582–3591 (1976).
Energy Level Analysis of $\text{Pm}^{3+}:\text{LaCl}_3$.
Pm IV: (EL) (CL) (W) PT
3575. Carter, S. L.; Kelly, H. P.; J. Phys. B **8**(18), L467–L471 (1975).
Photoionization Cross Section of the ^3P Ground State of Neutral Carbon.
C I: AT
3576. Cederbaum, L. S.; Matschke, F. E. P.; von Niessen, W.; Phys. Rev. A **12**(1), 6–16 (1975).
Green's-Function Approach to the Hyperfine Problem in Atoms and Molecules.
Li I: Hfs
3577. Champeau, R. J.; Keller, J. C.; J. Phys. (Paris), Lett. **36**(6), L161–L164 (1975).
High Resolution Optical Spectroscopy in Neon Using a Tunable Laser and an Excited Atomic Beam.
Ne I: Hfs
3578. Crosswhite, H. M.; Crosswhite, H.; Kaseta, F. W.; Sarup, R.; J. Chem. Phys. **64**(5), 1981–1985 (1976).
The Spectrum of $\text{Nd}^{3+}:\text{LaCl}_3$.
Nd IV: (EL) (CL) (W) PT
3579. Chipman, E.; Bruner, E. C., Jr.; Astrophys. J. **200**, 765–772 (1975).
The Solar Spectrum from 1173 to 1324 Å.
S I, II: W
3580. Cocke, C. L.; Varghese, S. L.; Bednar, J. A.; Bhalla, C. P.; Curnutte, B.; Kaufman, R.; Randall, R.; Richard, P.; Woods, C.; Scofield, J. H.; Phys. Rev. A **12**(6), 2413–2419 (1975).
X Rays from Foil-Excited Iodine Beams.
I XXIV–XXVI: EL CL W
3581. Cojan, J. L.; Huet, M.; Rudi-Saussereau, H.; Opt. Commun. **13**(4), 390–392 (1975).
Structure hyperfine du niveau $6s6d\ ^3\text{D}_1$ de l'isotope 199 du mercure par interferometrie Fabry-Perot.
Hg I: Hfs
3582. Connerade, J. P.; Proc. R. Soc. London, Ser. A **347**(1651), 581–584 (1976).
Potential Barrier Effects in the Absorption Spectrum of Xe I Between 18 and 90 Å.
Xe I: EL W
3583. Connerade, J. P.; Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **348**, 539–552 (1976).
Absorption Spectra Due to Excitation of a Single 3p Electron and Simultaneous Excitation of Two Electrons in Rb I.
Rb I: EL ND CL W AT
Rb II, III: AT
3584. Connerade, J. P.; Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **346**(1647), 565–570 (1975).
Centrifugal Barrier Perturbation of the $nf\ ^2\text{F}$ Series in Ba II.
Ba II: AT
3585. Connerade, J. P.; Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **348**, 239–243 (1976).
Potential Barrier Effects in the 3d Photoionization Continuum of Cs I.
Cs I: EL CL W
3586. Connerade, J. P.; Drerup, B.; Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **348**, 235–238 (1976).
Potential Barrier Effects Beyond the 4f Photoionization Thresholds in Pb I.
Pb I: EL CL W
3587. Conway, J. G.; Blaise, J.; Verges, J.; Spectrochim. Acta, Part B **31**, 31–47 (1976).
The i.r. Spectrum of Curium–244.
Cm I: EL CL W IS
Cm II: EL CL W
Pu: W
3588. Coulombe, M. C.; Sinzelle, J.; J. Phys. (Paris) **36**(9), 773–779 (1975).
Etude parametrique de la structure hyperfine du xenon I.
Xe I: Hfs
3589. Deech, J. S.; Luypaert, R.; Series, G. W.; J. Phys. B **8**(9), 1406–1414 (1975).
Determination of Lifetimes and Hyperfine Structures of the 8, 9, and $10\ ^2\text{D}_{3/2}$ States of ^{133}Cs by Quantum-Beat Spectroscopy.
Cs I: Hfs
3590. Delsart, C.; Keller, J. C.; Opt. Commun. **16**(3), 388–391 (1976).
Hyperfine Structure in ^{21}Ne Using Laser-Induced Absorption Line Narrowing.
Ne I: Hfs
3591. Doschek, G. A.; Feldman, U.; Davis, J.; Cowan, R. D.; Phys. Rev. A **12**(3), 980–986 (1975).
Density Sensitive Lines of Highly Ionized Iron.
Ti XVI, V XVII: EL CL W
Cr XVII, XVIII, Mn XIX, Fe XX: EL CL W
Co XX, XXI, Ni XXI: EL CL W
3592. Duong, H. T.; Jacquinet, P.; Juncar, P.; Liberman, S.; Pinard, J.; Vialle, J. L.; Huber, G.; Klapisch, R.; Thibault, C.; Lect. Notes Phys. **43**, 144–149 (1975).
High Resolution Laser Spectroscopy of the D-Lines of On-Line Produced Radioactive Sodium Isotopes.
Na I: Hfs IS
3593. Edlen, B.; Swensson, J. W.; Phys. Scr. **12**(1–2), 21–32 (1975).
The Spectrum of Doubly Ionized Titanium, Ti III.
Ti III: EL CL W IP SF PT
3594. Eibofner, A.; Phys. Lett. A **47**(5), 399–400 (1974).
 $S_{1/2}-P_{1/2}$ -Lambshift in the $n = 5$ and $n = 6$ States of Ionized Helium.
He II: EL QF
3595. Eibofner, A.; Phys. Lett. A **49**(4), 335–336 (1974).
Radio Frequency Induced D–F–Transitions in the $n = 4$ State of He^+
He II: EL QF
3596. Bouchiat, M. A.; Pottier, L.; J. Phys. (Paris), Lett. **37**(4), L79–L83 (1976).
Observation of the Interference Between the Magnetic and Electric Dipole Amplitudes of the Caesium 6S–7S Transition in an Electric Field. Measurement of the Transition Magnetic Moment.
Cs I: CL W Hfs
3597. Roig, R. A.; J. Phys. B **8**(18), 2939–2947 (1975).
The Photoionization Spectrum of Neutral Aluminum, Al I.
Al I: EL CL W IP
3598. Connerade, J. P.; Proc. R. Soc. London, Ser. A **347**(1651),

3. Bibliography Ordered by Reference Numbers—Continued

- 575-579 (1976).
Centrifugal Barrier Perturbation of the nd Series in Calcium II.
Ca I: AT
3599. Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **346**, 555-563 (1975).
The K I Absorption Spectrum in the Vacuum Ultraviolet: 2p-Subshell Excitation.
K I: EL CL W AT
3600. Carlson, L. R.; Solarz, R. W.; Paisner, J. A.; Worden, E. F.; May, C. A.; Johnson, S. A.; 9th Int. Quantum Electron. Conf., Amsterdam, The Netherlands, June 14-18, 1976.
Observation of New Levels for Isotope Separation in Atomic Uranium by Multistep Ionization.
U I: EL CL W
3601. Delamater, N. D.; Thesis, Ohio State Univ., 66 pp. (1975).
An Analysis of the Spectrum of Singly Ionized Yttrium.
Y II: EL CL W IP PT
Sr I, Zr III, Nb IV: PT
3602. Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **346**, 539-553 (1975).
The K I Absorption Spectrum in the Vacuum Ultraviolet: 3p-Subshell Excitation.
K I: EL CL W IP AT
3603. Solarz, R. W.; Paisner, J. A.; Carlson, L. R.; May, C. A.; Johnson, S. A.; Univ. Calif. Radiat. Lab., UCRL-77590, 34 pp. (1975).
Multi-Step Laser Spectroscopy in Atomic Uranium.
U I: EL CL W IP
3604. Widing, K. G.; Purcell, J. D.; Astrophys. J. **204**, L151-L153 (1976).
The Lithium-Like $2s^2S-2p^2P$ Transition in Solar Flares.
Ar XVI, Cr XXII, Mn XXIII: EL W AT
Fe XXIV: EL W AT
Mg X, Al XI, Si XII, Ca XVIII: W AT
K XVII: W
Ni XXVI: TE AT
3605. Conway, J. G.; Worden, E. F.; Blaise, J.; Verges, J.; Spectrochim. Acta, Part B **32**, 97-99 (1977).
The Infrared Spectrum of Californium-249.
Cf I, II: EL CL W Hfs
3606. Radziemski, L. J., Jr.; Gerstenkorn, S.; Luc, P.; Opt. Commun. **15**(2), 273-276 (1975).
Uranium Transitions and Energy Levels Which May Be Useful in Atomic-Photoionization Schemes for Separating ^{238}U and ^{235}U .
U I: EL CL W IS
3607. Ryabtsev, A. N.; Opt. Spectrosc. (USSR) **39**(3), 239-241 (1975).
Spectra of Ions in the Ni I Isoelectronic Series. Part I: Ga IV.
Ga IV: EL CL W
3608. Ryabtsev, A. N.; Opt. Spectrosc. (USSR) **39**(5), 455-457 (1975).
Spectra of Ions of the Isoelectronic Ni I Series. Part 2: Ge V.
Ge V: EL CL W
3609. Druetta, M.; Buchet, J. P.; J. Opt. Soc. Am. **66**(5), 433-436 (1976).
Beam-Foil Study of Krypton Between 400 and 800 Å.
Kr VI: EL CL
Kr VII, VIII: CL
3610. Conway, J. G.; Worden, E. F.; Blaise, J.; Camus, P.; Verges, J.; Spectrochim. Acta, Part B **32**, 101-106 (1977).
The i.r. Spectrum of Berkelium-249.
Bk I, II: EL CL W Hfs
3611. Zalubas, R.; Reader, J.; Corliss, C. H.; J. Opt. Soc. Am. **66**(1), 35-36 (1976).
 $4s^24p^4-4s4p^5$ Transitions in Five-Times-Ionized Yttrium (Y VI).
Y VI: EL ND CL W AT
3612. Gruzdev, P. F.; Loginov, A. V.; Opt. Spectrosc. (USSR) **39**(5), 464-465 (1975).
Neon Transition Probabilities. Part 2: $2p^54p-2p^5ns$ ($n = 3-6$) transitions.
Ne I: AT
3613. Behring, W. E.; Cohen, L.; Doschek, G. A.; Feldman, U.; J. Opt. Soc. Am. **66**(4), 376-378 (1976).
Transitions of Zn XXII, Zn XXIII, Zn XXIV, Ge XXIV, and Ge XXV Observed in Laser Produced Plasmas.
Zn XXII-XXIV: EL CL W
Ge XXIV, XXV: EL CL W
Cu XXI-XXIII, Ga XXIII, XXIV: PT
3614. Livingston, A. E.; Dumont, P. D.; Baudinet-Robinet, Y.; J. Opt. Soc. Am. **66**(4), 375-376 (1976).
Configuration Mixing Between $2p3p$ and $2s4s$ in N IV.
N IV: ND
3615. Wortman, D. E.; Morrison, C. A.; Leavitt, R. P.; Phys. Rev. B **12**(11), 4780-4789 (1975).
Analysis of the Ground Configuration of Tm^{3+} in CaWO_4 .
Tm IV: (EL) (CL) (W) PT
3616. Abele, J.; Baumann, M.; Hartmann, W.; Phys. Lett. A **51**(3), 169-170 (1975).
 g_J -Factors and Magnetic hfs Interaction Constants in the $6^2P_{3/2}-$ and $8^2P_{3/2}$ States of ^{133}Cs .
Cs I: ZE Hfs
3617. Edwards, A. K.; Phys. Rev. A **12**(5), 1830-1834 (1975).
Charge-Exchange Formation of the $^2P_{3/2}$ and $^2P_{1/2}$ States of Ar^- .
 Ar^- : EL
3618. Ekberg, J. O.; Phys. Scr. **13**(4), 245-249 (1976).
The Spectrum of Six-Times-Ionized Chromium, Cr VII.
Cr VII: EL CL W IP PT AT
3619. Swartz, M.; Kastner, S. O.; Goldsmith, L.; Neupert, W. M.; J. Opt. Soc. Am. **66**(3), 240-244 (1976).
Observations of $3p^53d-3p^54f$ and $3p^63d-3p^53d4s$ Transitions in Iron, Cobalt, Nickel, and Copper.
Fe IX, Co X, Ni XI, Cu XII: EL CL W
Ni X: W
3620. Meggers, W. F.; Moore, C. E.; Nat. Bur. Stand. (U.S.), Monogr. 153, 117 pages (July 1976).
The First Spectrum of Hafnium (Hf I).
Hf I: EL CL W ZE IP
3621. Henrichs, H. F.; Astron. Astrophys. **44**(1), 41-44 (1975).
The Lower Terms in Ni VII and Possible Identifications in RR Telescopii.
Ni VII: EL ND CL W PT
3622. Ekberg, J. O.; Phys. Scr. **13**(2), 111-116 (1976).
The Spectrum of Five-Times-Ionized Vanadium.
V VI: EL CL W IP PT AT
3623. Ekberg, J. O.; Svensson, L. A.; Phys. Scr. **12**(3), 116-118

3. Bibliography Ordered by Reference Numbers—Continued

- (1975).
Spectrum and Term System of Ti XII.
Ti XII: EL CL W IP SF PT
3624. Ryabtsev, A. N.; Pis'ma Astron. Zh. 1(9), 40-41 (1975).
Wavelengths of the O VI Resonance Lines.
O VI: W
3625. Ekberg, J. O.; Phys. Scr. 12(1-2), 42-57 (1975).
Term Analysis of Fe V.
Fe V: EL CL W PT AT
3626. Bradley, D. J.; Ewart, P.; Nicholas, J. V.; Shaw, J. R.
D.; Laser Spectrosc., Ed. R. G. Brewer and A. Mooradian,
pp. 193-204 (Plenum Press, New York, 1975).
Absorption Spectroscopy from Selectively Excited Atomic
Singlet Levels.
Ba I: EL CL W
3627. Esherick, P.; Armstrong, J. A.; Dreyfus, R. W.; Wynne, J.
J.; Phys. Rev. Lett. 36(22), 1296-1299 (1976).
Multiphoton Ionization Spectroscopy of High Lying,
Even-Parity States in Calcium.
Ca I: EL PT
3628. Kononov, E. Ya.; Koshelev, K. N.; Podobedova, L. I.;
Churilov, S. S.; Opt. Spectrosc. (USSR) 39(5), 458-460
(1975).
Spectrum of Calcium in the Vacuum Ultraviolet. Part I:
Ca XVII, Ca XVI.
Ca XVI, XVII: EL CL W
- 3629A. Nikitin, A. A.; Khatygin, A. F.; Sapar, A. A.;
Feklistova, T. H.; Atomic Spectroscopy Symp., Nat. Bur.
Stand. (U.S.), Sept. 23-26, 1975.
On the Structure of Astrophysical Spectra of C III, N IV
and O V.
C III, N IV, O V: AT
3630. Kastner, S. O.; Neupert, W. M.; Swartz, M.; Sol. Phys.
43(1), 111-115 (1975).
Observation of Possible Iron (Fe XVII)
 $2p^5 3p(^1S_0) - 2p^5 3s(^1P_1, ^3P_1)$ Transitions in Spectra of a
Solar Active Region and Flare.
Fe XVII: EL CL W
3631. Henrichs, H. F.; Fawcett, B. C.; Astron. Astrophys.,
Suppl. Ser. 23(2), 139-146 (1976).
Classification of $d^4 - d^3 4p$ Cobalt VI Spectra.
Co VI: EL ND CL W PT
3632. Berry, H. G.; Phys. Scr. 13(1), 36-38 (1976).
Experimental Lifetimes in Vanadium V.
V V: EL CL W
3633. Smitt, R.; Svensson, L. A.; Outred, M.; Phys. Scr. 13(5),
293-307 (1976).
An Experimental Study of $3s^2 3p^k$ and $3s 3p^{k+1}$ in the Cl I,
S I, P I, Si I, and Al I Isoelectronic Sequences.
S IV, K IV-VII, Ca V-VIII: EL CL W
Sc VI-IX, Ti VII-X, V VII-XI: EL CL W
Cr VIII-XI, Mn IX-XI, Fe X-XI: EL CL W
3634. Doschek, G. A.; Feldman, U.; VanHoosier, M. E.; Bartoe,
J. D. F.; Astrophys. J. Suppl. 31(3), 417-443 (1976).
The Emission-Line Spectrum Above the Limb of the Quiet
Sun: 1175-1940 Å.
Si VIII, S X, Fe XI, XII: EL W
Fe XIII: EL CL W
3635. Kononov, E. Ya.; Koshelev, K. N.; Podobedova, L. I.;
Chekalin, S. V.; Churilov, S. S.; J. Phys. B 9(4),
565-572 (1976).
Identification of the Solar Spectra of Multicharged Iron
Ions on the Basis of Laboratory Measurements.
Fe XX-XXII: EL CL W
3636. Abele, J.; Baumann, M.; Hartmann, W.; Phys. Lett. A
49(3), 205-206 (1974).
Determination of the g_J -Factor and the Magnetic hfs
Interaction Constant in the $6^2P_{1/2}$ -State of ^{133}Cs by
Optical Double Resonance in a Strong Magnetic Field.
Cs I: ZE Hfs
3637. Abele, J.; Z. Phys. A 274(3), 179-184 (1975).
Determination of g_J -Factors of the $6^2P_{3/2}$ - and
 $8^2P_{3/2}$ -States of ^{133}Cs .
Cs I: ZE Hfs
3638. Abele, J.; Z. Phys. A 274(3), 185-190 (1975).
The Hyperfine Structure of the $6^2P_{1/2}$ -State of ^{133}Cs in a
Strong Magnetic Field.
Cs I: ZE Hfs
3639. Boklen, K. D.; Bossert, T.; Foerster, W.; Fuchs, H. H.;
Nachtsheim, G.; Z. Phys. A 274(3), 195-201 (1975).
Hyperfine Structure Measurements in the the $^4I_{9/2}$ Ground
State of ^{141}Pr .
Pr I: ZE Hfs
3640. Brillet, W. L.; Phys. Scr. 13(5), 289-292 (1976).
Analysis of the $2p^5 3s$, $3p$, $3d$ and $4s$ Configurations of
Quadruply Ionized Silicon (Si V).
Si V: EL CL W
3641. Brown, C. M.; Tilford, S. G.; Ginter, M. L.; J. Opt. Soc.
Am. 65(12), 1404-1409 (1975).
Absorption Spectra of Zn I and Cd I in the 1300-1750 Å
Region.
Zn I, Cd I: EL CL W IP
3642. Blaise, J.; Radziemski, L. J., Jr.; J. Opt. Soc. Am.
66(7), 644-659 (1976).
Energy Levels of Neutral Atomic Uranium (U I).
U I: EL ND ZE
3643. Dankwort, W.; Trefftz, E.; Astron. Astrophys. 47(3),
365-370 (1976).
Oscillator Strengths and Collision Strengths in Si X.
Si X: AT
3644. Connerade, J. P.; Mansfield, M. W. D.; Martin, M. A. P.;
Proc. R. Soc. London, Ser. A 350, 405-417 (1976).
Observation of a "Giant Resonance" in the $3p$ Absorption
Spectrum of Mn I.
Mn I: W AT
3645. Connerade, J. P.; Garton, W. R. S.; Mansfield, M. W. D.;
Martin, M. A. P.; Proc. R. Soc. London, Ser. A 350,
47-60 (1976).
The Ti I Absorption Spectrum in the Vacuum Ultraviolet.
Ti I: EL CL W
3646. Chaghtai, M. S. Z.; Singh, S. P.; Khatoon, S.; J. Phys. B
8(11), 1831-1837 (1975).
Observation and Classification of $4p-5d$, $4p-6s$, $7s$
Transition in Mo VIII.
Mo VIII: EL CL W IP
3647. Hansen, J. E.; Persson, W.; Phys. Scr. 13(3), 166-180
(1976).
Spectrum of Trebly-Ionized Strontium (Sr IV).
Sr IV: EL CL W IP PT AT
3648. Buchholz, B.; Kronfeldt, H. D.; Muller, G.; Winkler, R.;
Physica (Utrecht) 83C, 247-248 (1976).
Determination of the Nuclear Spin of ^{207}Bi from Optical
Hyperfine Structure.
Bi I: Hfs

3. Bibliography Ordered by Reference Numbers—Continued

3649. Reader, J.; Phys. Rev. A **13**(2), 507–516 (1976).
Energy Levels of Singly Ionized Cesium (Cs II).
Cs II: EL CL W ZE AT
3650. Groeneveld, K. O.; Mann, R.; Nolte, G.; Schumann, S.;
Spohr, R.; Phys. Lett. A **54**(4), 335–336 (1975).
Lifetime Measurements of the Metastable $1s2s2p^4P_{5/2}$ State
in the Lithium-Like N, O and Ne.
N V, O VI, Ne VIII: EL CL W
3651. Nussbaumer, H.; Astron. Astrophys. **48**, 93–99 (1976).
On the EUV Spectrum of Fe X and Ni XII.
Fe X, Ni XII: PT
3652. Reader, J.; Acquista, N.; J. Opt. Soc. Am. **66**(9), 896–899
(1976).
 $4s^24p^4$ – $4s4p^5$ Transitions in Zr VII, Nb VIII, and Mo IX.
Zr VII, Nb VIII, Mo IX: EL CL W AT
3653. Gagne, J. M.; Saint-Dizier, J. P.; J. Opt. Soc. Am.
65(8), 962–963 (1975).
Isotope Shift in the Cd I Line 4678 Å ($5s5p^3P_0$ – $5s6s^3S_1$)
and Odd–Even Staggering.
Cd I, II: IS
3654. Kaufman, V.; Sugar, J.; J. Opt. Soc. Am. **66**(10),
1019–1025 (1976).
Wavelengths, Classifications, and Ionization Energies in
the Isoelectronic Sequences from Yb II and Yb III
through Bi XV and Bi XVI.
Yb II, III, Lu III, IV, Hf IV, V: CL W IP
Ta V, VI, W VI, VII, Re VII, VIII: CL W IP
Os VIII, IX, Ir IX, X, Pt X, XI: CL W IP
Au XI, XII, Hg XII, XIII: CL W IP
Tl XIII, XIV, Pb XIV, XV: CL W IP
Bi XV, XVI: CL W IP
3655. Flusberg, A.; Mossberg, T.; Hartmann, S. R.; Phys. Lett.
A **55**(7), 403–404 (1976).
Hyperfine Structure of the 7^2P States of Thallium by
Doppler–Free Two–Photon Absorption.
Tl I: Hfs IS
3656. Fischer, W.; Huhnermann, H.; Mandrek, K.; Meier, T.;
Aumann, D. C.; Physica (Utrecht) **79C**, 105–112 (1975).
Optical Isotope Shift in ^{144}Ce .
Ce I: IS
3657. Fischer, C. F.; Hansen, J. E.; Barwell, M.; J. Phys. B
9(11), 1841–1848 (1976).
Ab Initio Results for V I and Cr I.
V I, Cr I: AT
3658. Dembczynski, J.; Frackowiak, M.; Acta Phys. Pol. A **48**(1),
139–155 (1975).
Hyperfine Structure in Intermediate Coupling of the First
Excited Electron Configuration $6p^27s$ of ^{209}Bi ($I=9/2$).
Bi I: Hfs
3659. Delsart, C.; Pelletier–Allard, N.; Pelletier, R.; Opt.
Commun. **16**(1), 114–117 (1976).
Zeeman Effect of the 6011 Å Line of Pr^{3+} : LaCl_3 Using the
Fluorescence Line Narrowing Technique.
Pr IV: ZE
3660. Delsart, C.; Pelletier–Allard, N.; Pelletier, R.; J.
Phys. B **8**(17), 2771–2778 (1975).
Hyperfine Structure of the 6011 Å Line of Pr^{3+} : LaCl_3
Using the Fluorescence Line Narrowing Technique.
Pr IV: ZE Hfs
3661. Deimling, M.; Neugart, R.; Schweickert, H.; Z. Phys. A
273, 15–17 (1975).
Spin and Magnetic Moment of ^{25}Na by β –Radiation Detected
Optical Pumping.
Na I: Hfs
3662. Isaev, A. A.; Kazaryan, M. A.; Markova, S. V.; Petrash,
G. G.; Sov. J. Quantum Electron. **5**(3), 285–287 (1975).
Investigation of Pulse Infrared Stimulated Emission from
Barium Vapor.
Ba I, II: CL W
3663. Hyman, H. A.; von Rosenberg, C. W., Jr.; J. Quant.
Spectrosc. Radiat. Transfer **15**(10), 919–923 (1975).
Atomic Line Radiation in the Infrared.
Cs I: W
3664. Huet, M.; J. Phys. (Paris) **37**(4), 329–334 (1976).
Facteurs de Lande des Niveaux de la Configuration $6s6d$ du
Mercure.
Hg I: ZE
3665. Huber, G.; Kluge, H. J.; Kugler, L.; Otten, E. W.; Z.
Phys. A **272**, 381–385 (1975).
Determination of the Isotopic Shift of ^{192}Hg in the Line
 $\lambda=2537$ Å by Zeeman Scanning the Hanle Signal.
Hg I: IS
3666. Holmgren, L.; Lindgren, I.; Morrison, J.; Martensson, A.
M.; Z. Phys. A **276**(3), 179–185 (1976).
Fine–Structure Interval in Alkali–Like Spectra Obtained
from Many–Body Theory.
Na I: AT
3667. Hellentin, P.; Phys. Scr. **13**(3), 155–165 (1976).
The Spectrum of Doubly Ionized Barium, Ba III.
Ba III: EL ND CL IP
3668. Hogervorst, W.; Svanberg, S.; Phys. Scr. **12**(1–2), 67–74
(1975).
Stark Effect Investigation of D States in ^{85}Rb and ^{133}Cs
Using Level Crossing Spectroscopy with a CW Dye Laser.
Rb I, Cs I: SE
3669. Hickman, A. P.; Isaacson, A. D.; Miller, W. H.; Chem.
Phys. Lett. **37**(1), 63–66 (1976).
Calculation of Autoionization States of He and H^- .
 H^- , He I: AT
3670. Bhatia, A. K.; Phys. Rev. A **15**(3), 1315–1318 (1977).
Autoionization and Quasibound States of Li^+ .
Li I: EL
3671. Hartig, W.; Wilke, V.; Walther, H.; Opt. Commun. **14**(2),
244–247 (1975).
Measurement of the Fine Structure Splitting of the 3^2D
Multiplet of Li by Stepwise Excitation with cw Dye
Lasers.
Li I: EL
3672. Holmgren, L.; Phys. Scr. **12**(3), 119–124 (1975).
Theoretical Analysis of the Hyperfine Interaction in $m\text{snl}$
Configurations of Neutral Yb and Singly Ionized Lu.
Yb I, Lu II: AT
3673. Luke, T. M.; J. Phys. B **8**(9), 1501–1506 (1975).
Calculation of Doubly Excited Resonances in Neon.
Ne I: PT
3674. Luc–Koenig, E.; Morillon, C.; Verges, J.; Phys. Scr.
12(4), 199–219 (1975).
Experimental and Theoretical Studies in Atomic Iodine:
Infrared Arc Spectrum Observations, Classification and
Hyperfine Structure.
I I: EL CL W Hfs PT
3675. Keiser, G. M.; Robinson, H. G.; Johnson, C. E.; Phys.
Rev. Lett. **35**(18), 1223–1225 (1975).
Determination of $g_J(^4\text{He}, 2^3S_1)/g_J(^1\text{H}, 1^2S_{1/2})$: Resolution

3. Bibliography Ordered by Reference Numbers—Continued

- of a Discrepancy.
He I: ZE
3676. MacAdam, K. B.; Wing, W. H.; Phys. Rev. A **13**(6), 2163–2170 (1976).
Fine Structure of Rydberg States. II. $n = 8$ and 9 D and F States and $n = 16, 17, 18$ P and D States of ^4He .
He I: EL
3677. Muller, G.; Winkler, R.; Z. Phys. A **273**(4), 313–320 (1975).
Hyperfine Structure Analysis of the Ground Configurations $5d^86s^2$ and $5d^96s$ of the Pt–I Spectrum.
Pt I: Hfs IS
3678. Litzen, U.; Verges, J.; Phys. Scr. **13**(4), 240–244 (1976).
The Fe I Spectrum in the Region 1–4 μm .
Fe I: CL W
3679. Moskowitz, P. A.; Rummel, H.; Z. Phys. A **275**(3) 203–208 (1975).
Determination of the Isotope Shift of $^{115\text{m}}\text{Cd}$ by a Zeeman Scanning Method.
Cd I: IS
3680. Morillon, C.; Verges, J.; Phys. Scr. **12**(3), 145–156 (1975).
Study of the Ground Configuration $5s^25p^4$ of Te I and I II, by Observation of Multipole Infrared Lines.
Te I: CL ZE
I II: EL CL ZE
3681. Mikhalev, V. G.; Ogorodnikov, S. N.; Pankratov, V. G.; J. Appl. Spectrosc. (USSR) **20**(5), 673–674 (1974).
Determination of Electron Density from the Intensity of Forbidden Transitions in Lithium Plasmas.
Li I: W
3682. Morillon, C.; Verges, J.; Phys. Scr. **12**(3), 129–144 (1975).
Observation and Classification of the Arc Spectrum of Tellurium (Te I) Between 3678 cm^{-1} and 11761 cm^{-1} .
Te I: EL CL W ZE PT
3683. Meijer, F. G.; Physica (Utrecht) **81C**, 189–192 (1976).
The Seventh Spectrum of Rhenium, Re VII.
Re VII: EL CL W IP
3684. Marling, J. B.; IEEE J. Quantum Electron. **QE11**(10), 822–834 (1975).
Ultraviolet Ion Laser Performance and Spectroscopy—Part I: New Strong Noble-Gas Transitions Below $2500\text{ \AA}$.
Ne III, IV, Ar III, IV: CL W
Kr III, IV, Xe III, IV: W
3685. Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **348**, 143–151 (1976).
The Ca I Absorption Spectrum in the Extreme Ultraviolet: Excitation of the 2p Subshell.
Ca I: EL CL W AT
3686. MacAdam, K. B.; Wing, W. H.; Phys. Rev. A **12**(4), 1464–1474 (1975).
Fine Structure of Rydberg States: $n = 6$ and 7 D and F States of ^4He .
He I: EL
3687. Rodriguez, J.; Bonn, J.; Huber, G.; Kluge, H. J.; Otten, E. W.; Z. Phys. A **272**, 369–374 (1975).
Determination of Spin, Magnetic Moment and Isotopic Shift of Neutron Rich ^{205}Hg by Optical Pumping.
Hg I: Hfs IS
3688. Lhuillier, C.; Faroux, J. P.; Billy, N.; J. Phys. (Paris) **37**(4), 335–354 (1976).
Effect zeeman des niveaux ^3P de l'hélium.
He I: ZE PT
3689. Spector, N.; Sugar, J.; J. Opt. Soc. Am. **66**(5), 436–438 (1976).
Analysis of the Fourth Spectrum of Terbium (Tb IV).
Tb IV: EL CL W IP PT
3690. Boiko, V. A.; Pikuz, S. A.; Faenov, A. Ya.; Instrum. Exp. Tech. (USSR) **21**, 513–516 (1978).
Dispersive X-Ray Photographic System.
Mg XII: CL
3691. Solarz, R. W.; May, C. A.; Carlson, L. R.; Worden, E. F.; Johnson, S. A.; Paisner, J. A.; Radziemski, L. J., Jr.; Phys. Rev. A **14**(3), 1129–1136 (1976).
Detection of Rydberg States in Atomic Uranium Using Time-Resolved Stepwise Laser Photoionization.
U I: EL IP AT
3692. Shimon, L. L.; Vukstich, V. S.; Goldovskii, V. L.; Zapesochnyi, I. P.; Erdevdi, N. M.; Opt. Spectrosc. (USSR) **40**(4), 367–369 (1976).
Electron-Impact Excitation of Thallium Spectral Lines in the Vacuum Spectral Region.
Tl II: CL
3693. Svensson, L. A.; Phys. Scr. **13**(4), 235–239 (1976).
The Spectrum of Four-Times-Ionized Titanium, Ti V.
Ti V: EL CL W IP PT AT
3694. Sugar, J.; Kaufman, V.; Phys. Rev. A **12**(3), 994–1012 (1975).
Seventh Spectrum of Tungsten (W VII); Resonance Lines of Hf V.
Hf V: EL CL W
W VI: IP
W VII: EL CL W IP PT
3695. Sugar, J.; Kaufman, V.; Phys. Rev. C **12**(4), 1336–1339 (1975).
Nuclear Magnetic Dipole Moment of ^{181}Ta .
Ta V: EL CL W Hfs IP
3696. Spence, D.; Phys. Rev. A **12**(2), 721–724 (1975).
Additional Resonances in Electron Scattering by Atomic Oxygen.
O I: EL
3697. Silver, J. D.; Desesquelles, J.; Gaillard, M. L.; J. Phys. B **8**(11), L219–L224 (1975).
Hyperfine Structure Measurements in the $2s3p\ ^3\text{P}$ Levels of ^{14}N IV by Zero-Field Quantum Beats after Beam Foil Excitation.
N IV: Hfs
3698. Schurmann, D.; Z. Phys. A **273**(4), 331–338 (1975).
Atomic States of Lithium by the Beam-Foil Technique in the Spectral Range 400–1900 $\text{\AA}$.
Li II: CL W
3699. Ross, C. B.; Wood, D. R.; Scholl, P. S.; J. Opt. Soc. Am. **66**(1), 36–39 (1976).
Series Limit and Hydrogenlike Series in Pb II.
Pb II: EL CL W IP
3700. Luc-Koenig, E.; J. Phys. (Paris) **33**, 847–852 (1972).
Etude a priori de l'influence des effets relativistes sur la structure hyperfine de ^{129}Xe et ^{131}Xe .
Xe I: Hfs
3701. Palenius, H. P.; Phys. Lett. A **56**(6), 451–452 (1976).
The Establishment of the $5d^2\ ^3\text{F}$ and ^1S Levels in Ba I.
Ba I: EL CL W
3702. Kaplyanskii, A. A.; Medvedev, V. N.; Skvortsov, A. P.;

3. Bibliography Ordered by Reference Numbers—Continued

- Opt. Spectrosc. (USSR) **39**(4), 437–438 (1975).
Linear Stark Effect in f-f Spectra of Triply Charged
Rare-Earth Ions in Fluorite Crystals.
Ho IV: SE
3703. Joshi, Y. N.; Kushawaha, V. S.; Benschop, H.; van Kleef,
T. A. M.; Can. J. Phys. **53**(17), 1689–1691 (1975).
Resonance Lines in the Fourth Spectrum of Silver: Ag IV.
Ag IV: EL CL W
3704. Kaufman, V.; Sugar, J.; Phys. Rev. A **12**(4), 1402–1403
(1975).
Spectrum of Six-Times Ionized Rhenium (Re VII).
Re VII: EL CL W Hfs IP
3705. Kastner, S. O.; Behring, W. E.; Cohen, L.; Astrophys. J.
199, 777–780 (1975).
Observation of Subordinate $2p^5 4d-2p^5 3p$ Transitions in
Neon-Like Ions from Ca XI to Ni XIX.
Ca XI, Sc XII, Ti XIII, V XIV: CL W
Cr XV, Mn XVI, Fe XVII, Co XVIII: CL W
Ni XIX: CL W
3706. Kozlov, M. G.; Kotochigova, S. A.; Nikolaev, V. N.; Opt.
Spectrosc. (USSR) **41**(1), 4–7 (1976).
Absorption Spectra of Rare-Earth Elements in the Schumann
Region. Ytterbium.
Yb I: W
3707. Lee, S. A.; Wallenstein, R.; Hansch, T. W.; Phys. Rev.
Lett. **35**(19), 1262–1266 (1975).
Hydrogen 1S–2S Isotope Shift and 1S Lamb Shift Measured
by Laser Spectroscopy.
H I: IS
3708. Laskowski, B.; Lunell, S.; Int. J. Quantum Chem., Symp.
9, 175–182 (1975).
Angularly Projected Hartree-Fock Calculation of the
Hyperfine Interaction in Li 2^2P .
Li I: Hfs AT
3709. Lange, W.; Z. Phys. A **272**, 223–226 (1975).
Level Crossing Investigation of the Hyperfine Splitting
in the $z^6P_{7/2}$ -Level of Eu I.
Eu I: Hfs
3710. Lahaye, B.; Margerie, J.; J. Phys. (Paris) **36**(10),
943–952 (1975).
The g-Factor of the Metastable 6^3P_0 Levels of Odd
Isotopes of Mercury.
Hg I: ZE
3711. Kolyniak, W.; Kornalewski, T.; Roszkowska, K.; Acta Phys.
Pol. A **49**, 679–682 (1976).
Multipole Lines in Spectrum of Bi II.
Bi II: EL CL W
3712. McDowell, H. K.; McCollum, W. N.; J. Chem. Phys. **64**(11),
4801–4802 (1976).
A Helium Hartree-Fock Orbital Suitable for Reduced
Green's Function Calculations.
He I: AT
3713. Reader, J.; J. Opt. Soc. Am. **65**(9), 988–990 (1975).
Spectrum of Rb III Observed with a Pulsed rf Light
Source.
Rb III: EL CL W ZE
3714. Kato, Y.; Stoicheff, B. P.; J. Opt. Soc. Am. **66**(5),
490–492 (1976).
Two-Photon Absorption to Highly Excited D States of Rb
Atoms.
Rb I: EL
3715. Kaufman, V.; Sugar, J.; J. Opt. Soc. Am. **66**(5), 439
(1976).
Resonance Transition Array of Yb IV.
Yb IV: EL CL W
3716. Kupliauskis, Z. I.; Kupliauskiene, A. V.; Opt. Spectrosc.
(USSR) **39**(5), 569–570 (1975).
Emission of Atoms of the Second Period with K Vacancies.
O I, F II, Ne III: AT
3717. Foley, H. M.; Sternheimer, R. M.; Phys. Lett. A **55**(5),
276–278 (1975).
Fine Structure Inversion of the 3d Excited State of
Sodium.
Na I: EL
3718. Knystautas, E. J.; Drouin, R.; J. Phys. B **8**(12),
2001–2006 (1975).
New Identifications and Lifetime Measurements of Excited
States in Highly Ionized Oxygen.
O V–VII: CL
3719. Klimkin, V. M.; Kvantovaya Elektron. (Moscow) **2**(3),
579–584 (1975).
Investigation of Ytterbium Vapor for Production of Gas
Laser.
Yb I, II: CL W
3720. King, G. C.; Read, F. H.; Bradford, R. C.; J. Phys. B
8(13), 2210–2223 (1975).
Structure Near Autoionizing Energies in the Excitation of
Bound States of Helium, Neon and Argon by Electron
Impact.
Ne⁺, Ne II, Ar II: EL
3721. Prior, M. H.; Wang, E. C.; Phys. Rev. Lett. **35**(1), 29–32
(1975).
Hyperfine Structure of $2s^3\text{He}^+$ by an Ion Storage
Technique.
He II: Hfs
3722. Poulsen, O.; Ramanujam, P. S.; Iversen, D. B.; J. Phys. B
8(17), L450–L453 (1975).
Hyperfine Structure of $2p^2P_{3/2}$ in ^{11}Be III.
Be III: ZE Hfs
3723. Beck, D. R.; Nicolaides, C. A.; Chem. Phys. Lett. **48**(1),
135–138 (1977).
On the Calculation of Induced Electric and Magnetic
Moments of Atoms and Molecules.
Be I: AT
3724. Ong, W.; Russek, A.; Phys. Rev. A **13**(1), 294–305 (1976).
Theoretical Study of Autoionizing States and Lifetimes in
Multiply Excited Argon.
Ar I: PT
3725. Orth, H.; Ackermann, H.; Otten, E. W.; Z. Phys. A **273**(3),
221–232 (1975).
Fine and Hyperfine Structure of the 2^2P Term of ^7Li ;
Determination of the Nuclear Quadrupole Moment.
Li I: Hfs
3726. Roig, R. A.; Tondello, G.; J. Opt. Soc. Am. **65**(7),
829–830 (1975).
Extensions to the Spectrum of Singly Ionized Barium
(Ba II).
Ba II: EL CL W
3727. Roig, R. A.; J. Opt. Soc. Am. **66**(12), 1400–1405 (1976).
Absorption Spectrum of Ba II in the Vacuum Ultraviolet.
Ba II: EL CL W
3728. Meinders, E.; Physica (Utrecht) **84C**, 117–132 (1976).
Revised Analysis of the Cu IV Spectrum.
Cu IV: EL CL PT

3. Bibliography Ordered by Reference Numbers—Continued

3729. Carlson, L. R.; Paisner, J. A.; Worden, E. F.; Johnson, S. A.; May, C. A.; Solarz, R. W.; J. Opt. Soc. Am. **66**(8), 846-853 (1976).
Radiative Lifetimes, Absorption Cross Sections, and the Observation of New High Lying Odd Levels of ^{238}U Using Multistep Laser Photoionization.
U I: EL
3730. Ben Ahmed, Z.; Verges, J.; Wilson, M.; Giacchetti, A.; Physica (Utrecht) **84C**, 275-280 (1976).
An Extension of the Even Energy Level System of La I.
La I: EL ND ZE PT
3731. Feldman, U.; Brown, C. M.; Doschek, G. A.; Moore, C. E.; Rosenberg, F. D.; J. Opt. Soc. Am. **66**(8), 853-859 (1976).
XUV Spectrum of C I Observed from Skylab during a Solar Flare.
C I: EL ND CL W
3732. Poppe, R.; Physica (Utrecht) **81C**(2), 351-365 (1976).
Extended Analysis of Ni IV.
Ni IV: EL ND CL W PT
3733. Curry, S. M.; Collins, C. B.; Mirza, M. Y.; Popescu, D.; Popescu, I.; Opt. Commun. **16**(2), 251-255 (1976).
Fine-Structure Measurements of Two-Photon Transitions in Atomic Cesium with a Tunable Dye Laser.
Cs I: EL
3734. Bonn, J.; Huber, G.; Kluge, H. J.; Otten, E. W.; Lode, D.; Z. Phys. A **272**, 375-380 (1975).
Orientation of $^{199\text{m}}\text{Hg}$ by Optical Pumping Detected by γ -Radiation Anisotropy.
Hg I: Hfs IS
3735. Balakin, V. A.; Konovalov, I. P.; Protsenko, E. D.; Sov. J. Quantum Electron **5**(5), 581-583 (1975).
Measurement of the Spectral Characteristics of the $3.3912\ \mu$ ($3s_2-3p_2$ Ne) Line.
Ne I: CL W ZE IS
3736. Wei, P. S. P.; J. Chem. Phys. **64**(4), 1531-1532 (1976).
Emission Spectrum of Aluminum in a Laser Produced Plasma.
Al I: CL W
3737. Vetter, J.; Ackermann, H.; zu Putlitz, G.; Weber, E. W.; Z. Phys. A **276**(3), 161-165 (1976).
Hyperfine Structure Measurement of and $^9\text{Be}^+ 2^2\text{S}_{1/2}$ Ground State by Optical Pumping.
Be II: Hfs
3738. Ward, D. B.; Center for Radiophys. Space Res., Cornell Univ., CSRS-613, 102 pp. (1975).
Far Infrared Spectroscopy of H II Regions.
O III: W
3739. Raassen, A. J. J.; van Kleef, T. A. M.; Metsch, B. C.; Physica (Utrecht) **84C**, 133-146 (1976).
Term Analysis of the System $3d^6-3d^54p$ of the Fifth Spectrum of Nickel (Ni V).
Ni V: EL CL W PT
3740. Valin, M.; Marmet, P.; J. Phys. B **8**(18), 2953-2967 (1975).
Atomic Structures in Kr between 22 and 32 eV.
Kr I: EL CL W
3741. Tam, A. C.; Phys. Rev. A **12**(2), 539-550 (1975).
Stepwise Excitation and Level-Crossing Spectroscopy of the Triplet D States of Helium-4.
He I: EL
3742. Spector, N.; Phys. Scr. **13**(3), 181-183 (1976).
Les niveaux $4f^{11}(^1I_{13/2}) 5d, 6p$ de l'holmium une fois ionise (Ho II).
Ho II: EL ND CL W PT
3743. Wyart, J. F.; Physica (Utrecht) **83C**, 361-366 (1976).
Interpretation du spectre de Dy II. III. Etude des configurations $4f^{10}6s$ et $4f^{10}5d$.
Dy II: EL ND ZE PT
3744. Roig, R. A.; Tondello, G.; J. Phys. B **9**(14), 2373-2378 (1976).
The Absorption Spectrum of Neutral Boron, B I.
B I: EL CL W
3745. Ramonas, A.; Uspalis, K.; Liet. Fiz. Rinkiny **15**(5), 737-748 (1975).
The Semiempirical Investigation of the Energy Spectra V III, Cr IV and Mn V.
Mn V: PT
3746. Ray, S. N.; Rodgers, J. E.; Das, T. P.; Phys. Rev. A **13**(6), 1983-1985 (1976).
Hyperfine Interactions in Stripped Atoms Isoelectronic with Alkali Atoms.
Li I, Be II, B III, C IV, N V, O VI: Hfs
F VII, Ne VIII: Hfs
3747. Roberts, D. E.; Fortson, E. N.; Opt. Commun. **14**(3), 332-335 (1975).
Rubidium Isotope Shifts and Hyperfine Structure by Two-Photon Spectroscopy with a Multi-Mode Laser.
Rb I: Hfs IS
3748. Dewhurst, R. J.; Khan, M. A.; Pert, G. J.; J. Phys. B **8**(13), 2301-2310 (1975).
Investigations of XUV and Soft X-Ray Emission from Plasmas Produced by Picosecond Pulses from Solid Targets.
C V, VI, F V-IX, Ti XI-XV: W
Fe VIII-X, XIV-XVIII, Cu XVIII, XIX: W
3749. Epstein, G. L.; Reader, J.; J. Opt. Soc. Am. **66**(6), 590-598 (1976).
Resonance Lines and Energy Levels of Cs III, Ba IV, and La V.
Cs III, Ba IV, La V: EL CL W IP PT
3750. Glass, R.; Hibbert, A.; J. Phys. B **9**(6), 875-880 (1976).
The Hyperfine Structure of the $1s^22p\ ^2P$ State of Lithium.
Li I: Hfs PT
3751. Sugar, J.; Martin, W. C.; J. Res. Nat. Bur. Stand. (U.S.) **80A**(3), 465-476 (1976).
Calculations of Configurations of Doubly Ionized Copper (Cu III).
Cu III: PT
3752. Keirns, M. H.; Colson, S. D.; J. Opt. Soc. Am. **65**(12), 1413-1417 (1975).
Analysis of the Hyperfine Structure of the Mercury $6^3D_3 \rightarrow 6^3P_2$ Transition.
Hg I: Hfs
3753. Tsekeris, P.; Farley, J.; Gupta, R.; Phys. Rev. A **11**(6), 2202-2203 (1975).
Measurement of the Hyperfine Structure of the $8^2P_{1/2}$ State of ^{87}Rb and the $9^2P_{1/2}$ State of ^{133}Cs .
Rb I, Cs I: Hfs
3754. Kaufman, V.; Radziemski, L. J., Jr.; J. Opt. Soc. Am. **66**(6), 599-600 (1976).
The Sixth Spectrum of Uranium (U VI).
U VI: EL CL W AT
3755. Kushawaha, V. S.; Joshi, Y. N.; J. Opt. Soc. Am. **66**(6), 630-631 (1976).

3. Bibliography Ordered by Reference Numbers—Continued

- Resonance Lines in the In VI Spectrum.
In VI: EL CL W
3756. Mikhalev, V. G.; Ogorodnikov, S. N.; Orlov, R. V.; Smirnova, G. F.; Zh. Prikl. Spektrosk. **24**(1), 142–143 (1976).
Some Results of Spectroscopic Studies of Low Pressure Cesium Plasma.
Cs I: W Hfs
3757. Miyazaki, K.; Watanabe, T.; Fukuda, K.; J. Phys. Soc. Jpn. **38**(5), 1551 (1975).
Absorption Cross Sections for the Autoionizing Transitions $5s5p\ ^3P_{1,2}-5p^2\ ^3P_2$ of Cd I.
Cd I: CL W
3758. Miyazaki, K.; Watanabe, T.; Fukuda, K.; J. Phys. Soc. Jpn. **40**(1), 233–238 (1976).
Dispersion and Absorption Studies on the Doubly Excited $5p^2\ ^3P_{0,1,2}$ States of Cd I.
Cd I: CL W
3759. Narain, U.; Jain, N. K.; J. Phys. B **9**(6), 917–921 (1976).
Electron Detachment Cross Sections of H⁻.
H⁻: AT
3760. Moore, C. E.; Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.) **3**(7), 30 pp. (1976).
Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, O I.
O I: EL CL W IP
3761. Corliss, C. H.; J. Res. Nat. Bur. Stand. (U.S.) **80A**(3), 429–438 (1976).
Oscillator Strengths for Lines of Ionized Uranium (U II).
U II: CL
3762. Berry, H. G.; Curtis, L. J.; Ellis, D. G.; Schectman, R. M.; Phys. Rev. Lett. **35**(5), 274–277 (1975).
Hyperfine Quantum Beats in Oriented ^{14}N IV.
N IV: Hfs
3763. Brechignac, C.; Gerstenkorn, S.; Luc, P.; Physica (Utrecht) **82C**(2), 409–417 (1976).
Déplacement isotopique dans la raie de résonance D_2 du rubidium. Inversion des valeurs de $\langle r^2 \rangle$ des isotopes ^{85}Rb et ^{87}Rb .
Rb I: IS
3764. Hutcheon, R. J.; Pye, J. P.; Evans, K. D.; Mon. Not. R. Astron. Soc. **175**, 489–499 (1976).
The Spectrum of Fe XVII in the Solar Corona.
Fe XVII: CL W
3765. Connerade, J. P.; Proc. R. Soc. London, Ser. A **352**, 561–575 (1977).
Inter-Subshell Correlations and Two-Electron Detachment in the 4d Spectrum of In I.
In I: EL ND CL W AT
3766. Hertz, H.; Z. Phys. A **274**(4), 289–291 (1975).
VUV Emission of Xe III Levels Excited by Electron Impact via $\text{N}_{4,5}$ OO Auger Transitions.
Xe III: EL CL W
3767. Biraben, F.; Grynberg, G.; Giacobino, E.; Phys. Lett. A **56**(6), 441–442 (1976).
Investigation of Isotopic Shift in the $4d'$ Subconfiguration of Neon Using Doppler-Free Two-Photon Spectroscopy.
Ne I: IS
3768. Ertmer, W.; Hofer, B.; Z. Phys. A **276**, 9–14 (1976).
Zero-Field Hyperfine Structure Measurements of the Metastable States $3d^24s^4\text{F}_{3/2, 9/2}$ of ^{45}Sc Using Laser-Fluorescence Atomic-Beam-Magnetic Resonance Technique.
Sc I: Hfs
3769. Zeiske, W.; Meisel, G.; Gebauer, H.; Hofer, B.; Ertmer, W.; Phys. Lett. A **55**(7), 405–406 (1976).
Hyperfine Structure of CW Dye Laser Populated High Lying Levels of ^{45}Sc by Atomic-Beam Magnetic-Resonance.
Sc I: Hfs
3770. Joshi, Y. N.; van Kleef, T. A. M.; Kushawaha, V. S.; Can. J. Phys. **54**(8), 889–894 (1976).
The Fifth Spectrum of Indium: In V.
In V: EL ND CL W PT
3771. Joshi, Y. N.; van Kleef, T. A. M.; Benschop, H.; Can. J. Phys. **54**(15), 1545–1552 (1976).
Eighth Spectrum of Selenium: Se VIII.
Se VII: W
Se VIII: EL ND CL W PT
3772. Faucher, P.; J. Phys. B **8**(11), 1886–1894 (1975).
Quantum Theory of Proton Collisions with Ions of np^2 Configuration. Application to Fe^{+12} .
Fe XIII: PT
3773. Tako, T.; Koga, Y.; Hirano, I.; Ohi, M.; Jpn. J. Appl. Phys. **14**(11), 1641–1646 (1975).
Absorption of Rb-D Lines by Rb Filter Cell.
Rb I: Hfs
3774. Vetter, J.; Stuke, M.; Weber, E. W.; Z. Phys. A **273**, 129–135 (1975).
Hyperfine Density Shifts of $^{137}\text{Ba}^+$ Ions in Noble Gas Buffers.
Ba II: Hfs
3775. Harper, C. D.; Levenson, M. D.; Phys. Lett. A **56**(5), 361–362 (1976).
Fine Structure Splitting of High ^2D States of ^{39}K .
K I: EL
3776. Higgins, R. B.; J. Phys. B **8**(14), L321–L325 (1975).
Three-Level Atomic Systems as Models for the Dynamical Stark Effect in the Sodium D_2 Line.
Na I: SE
3777. Kovalev, V.; Ramonas, A.; Ryabtsev, A.; Liet. Fiz. Rinkiny **15**(6), 915–927 (1975).
The Spectrum of Fe VI: Transition $3d^3-3d^24p$.
Fe VI: ND W
3778. Zirin, H.; Nature (London) **259**(5543), 466–467 (1976).
Fe XIII Line in R Aquarii.
Fe XIII: W
3779. Zhukov, V. V.; Latash, E. L.; Mikhalevskii, V. S.; Sem, M. F.; Sov. J. Quantum Electron. **5**(4), 468–469 (1975).
New Laser Transitions in the Spectrum of Tin and Population Inversion Mechanism.
Sn I, II: CL W
3780. Smith, G.; Tomkins, F. S.; Philos. Trans. R. Soc. London, Ser. A **283**(1313), 345–365 (1976).
The Absorption Spectrum of Europium.
Eu I: EL ND CL W ZE
3781. Biraben, F.; Giacobino, E.; Grynberg, G.; Phys. Rev. A **12**(6), 2444–2446 (1975).
Doppler-Free Two-Photon Spectroscopy of Neon.
Ne I: Hfs IS
3782. Grundevik, P.; Gustavsson, M.; Svanberg, S.; Phys. Lett. A **56**(1), 25–26 (1976).
Isotope Shifts in Dysprosium Measured by High Resolution Laser Spectroscopy.

3. Bibliography Ordered by Reference Numbers—Continued

3783. Dy I: IS
Ishida, K.; Phys. Rev. A **12**(4), 1153–1158 (1975).
Core Radial Polarization and the Contact Hyperfine
Structure of ^4S State of Nitrogen.
N I: AT
3784. Parkinson, J. H.; Sol. Phys. **42**(1), 183–207 (1975).
The Analysis of a High Resolution X-Ray Spectrum of a
Solar Active Region.
O VII, VIII, Ne VIII–X, Na X: EL CL W
Mg X, XI, Fe XVII, XVIII, Ni XIX: EL CL W
3785. Littman, M. G.; Zimmerman, M. L.; Ducas, T. W.; Freeman,
R. R.; Kleppner, D.; Phys. Rev. Lett. **36**(14), 788–791
(1976).
Structure of Sodium Rydberg States in Weak to Strong
Electric Fields.
Na I: SE
3786. Kugel, H. W.; Leventhal, M.; Murnick, D. E.; Patel, C. K.
N.; Wood, O. R., II; Phys. Rev. Lett. **35**(10), 647–650
(1975).
Infrared–X-Ray Double-Resonance Study of $2\text{P}_{3/2}$ – $2\text{S}_{1/2}$
Splitting in Hydrogenic Fluorine.
F IX: QF
- 3787A. Lam, L. K.; Diss. Abstr. Int. B **36**(6), 2880 (1975).
Hyperfine Structure and Lifetime Measurement of the First
Excited S and D States of Alkali Atoms.
Rb I, Cs I: Hfs
3788. Connerade, J. P.; Mansfield, M. W. D.; Proc. R. Soc.
London, Ser. A **352**, 557–560 (1977).
A Correction to an Apparent Discrepancy Between Theory
and Experiment in 3d Subshell Absorption Spectra.
Kr I: EL
3789. Luc-Koenig, E.; Phys. Rev. A **13**(6), 2114–2122 (1976).
Doublet Inversions in Alkali–Metal Spectra: Relativistic
and Correlation Effects.
Na I, Cs I: PT
3790. Novick, R.; Sprott, G.; Lucatorto, T.; Phys. Rev. A
14(1), 273–278 (1976).
Identification of the Lowest Metastable Autoionizing
Level in Rb from rf Spectroscopic Studies.
Rb I: EL
3791. Gallagher, T. F.; Hill, R. M.; Edelstein, S. A.; Phys.
Rev. A **13**(4), 1448–1450 (1976).
Resonance Measurements of d–f Splittings in Highly
Excited States of Sodium.
Na I: EL CL W
3792. Mansfield, M. W. D.; Connerade, J. P.; Proc. R. Soc.
London, Ser. A **352**, 125–139 (1976).
Observation of 4d–f Transitions in Europium Vapour.
Eu I: EL ND CL W AT
3793. Fred, M.; Tomkins, F. S.; Blaise, J. E.; Camus, P.;
Verges, J.; Argonne Nat. Lab. Rep. ANL–76–68, 231 pp.
(1976).
The Atomic Spectrum of Neptunium.
Np I: EL ND CL W ZE Hfs
3794. Dembczynski, J.; Acta Phys. Pol. A **49**(4), 541–554 (1976).
Determination of the Quadrupole Moment of the $^{121}_{51}\text{Sb}$
($I=5/2$) Nucleus from Hyperfine Structure Analysis.
Sb I: EL Hfs PT
- 3795A. Dietrich, D. D.; Diss. Abstr. Int. B **36**(2), 777 (1975).
The Lamb Shift in Li^{++} .
Li III: QF
3796. Drake, G. W. F.; Farago, P. S.; van Wijngaarden, A.;
Phys. Rev. A **11**(5), 1621–1628 (1975).
Test of the Anisotropy Method for Lamb-Shift
Measurements—Theory and Experiment.
H I: QF Hfs
3797. Dynefors, B.; Martinson, I.; Veje, E.; Phys. Scr.
12(1–2), 58–62 (1975).
A Study of the Beam-Foil Excitation Mechanism Using
60–360 keV Be^+ Projectiles.
Be I–III: W
3798. Fliflet, A. W.; Kelly, H. P.; Phys. Rev. A **13**(1), 312–317
(1976).
Photoionization of the 3d, 3p, and 3s Subshells of Zn I.
Zn I: W
3799. Fredriksson, K.; Svanberg, S.; Phys. Lett. A **53**(6),
461–463 (1975).
Investigation of the Scalar Stark Interaction for Excited
S and D Levels in Cesium Using High Resolution Laser
Spectroscopy.
Cs I: SE
3800. Spector, N.; Astrophys. J. **211**, 600–604 (1977).
Description of the Holmium Spectra in the Photographic
Infrared (Ho I, Ho II).
Ho I, II: W
3801. Khan, M. A.; Pert, G. J.; Z. Phys. A **276**, 329–334 (1976).
Spectroscopic Studies of Plasmas Produced from Thin Foils
by Fast Rise-time Nanosecond Laser Pulses.
C V, VI, Al XI: W
3802. Delage, A.; Carette, J. D.; Can. J. Phys. **53**(19),
2079–2084 (1975).
Le spectre des états électroniques de Kr I mesure par
spectrométrie électronique.
Kr I: EL ND CL
3803. Deagenais, M.; Johns, J. W. C.; McKellar, A. R. W.; Can.
J. Phys. **54**(14), 1438–1441 (1976).
Precise Measurement of the Ground State ($^2\text{P}_{1/2}$ – $^2\text{P}_{3/2}$)
Splitting of Atomic Chlorine by CO_2 Laser Zeeman
Spectroscopy.
Cl I: EL
3804. Roy, D.; Delage, A.; Carette, J. D.; Phys. Rev. A **12**(1),
45–51 (1975).
Resonances in the Differential Excitation Functions of
Five Electronic States of Ne in the Autoionization
Region.
Ne I: EL
3805. Suzer, S.; Banna, M. S.; Shirley, D. A.; J. Chem. Phys.
63(8), 3473–3477 (1975).
Relativistic and Correlation Effects in the 21.2-eV
Photoemission Spectrum of Atomic Lead.
Pb II: EL
3806. Pegg, D. J.; Haselton, H. H.; Thoe, R. S.; Griffin, P.
M.; Brown, M. D.; Sellin, I. A.; Phys. Rev. A **12**(4),
1330–1339 (1975).
Core-Excited Autoionizing States in the Alkali Metals.
Li I, Na I, Mg II: EL CL W AT
3807. Ben Ahmed, Z.; Physica (Utrecht) **92C**, 122–131 (1977).
Extension de l'étude du spectre d'arc du scandium II.
Interpretation théorique.
Sc I: AT PT
3808. Tsekeris, P.; Liao, K. H.; Gupta, R.; Phys. Rev. A **13**(6),
2309–2310 (1976).
Radiofrequency Spectroscopy of the $5^2\text{S}_{1/2}$ State of ^{23}Na :
Hyperfine-Structure Measurement.

3. Bibliography Ordered by Reference Numbers—Continued

- Na I: Hfs
3809. Hassan, G. E. M. A.; Abbas, A.; Turki, A. H.; Indian J. Phys. **49**(10), 729-731 (1975).
New Energy Levels in the Spectrum of Neodymium—Nd I.
Nd I: EL ZE
3810. Le Dourneuf, M.; Lan, V. K.; Burke, P. G.; Taylor, K. T.; J. Phys. B **8**(16), 2640-2653 (1975).
The Photoionization of Neutral Aluminium.
Al II: AT
3811. Delsart, C.; Pelletier—Allard, N.; Pelletier, R.; J. Phys. (Paris) **37**(6), 683-691 (1976).
Etude des effets d'affinement de la fluorescence excitée par une radiation monochromatique pour un système a trois niveaux de Pr^{3+} : LaCl_3 .
Pr IV: Hfs
3812. Augustyniak, L.; Heldt, J.; Bronowski, J.; Phys. Scr. **12**(3), 157-163 (1975).
Zeeman Effect of the 6476 Å Mixed Multipole Line of Bismuth.
Bi I: ZE Hfs
3813. Daum, G. R.; Kelly, H. P.; Phys. Rev. A **13**(2), 715-725 (1976).
Photoionization Cross Section of Si II from Threshold to 1 keV.
Si II: AT
3814. Berry, H. G.; Phys. Scr. **12**(1-2), 5-20 (1975).
Multiply-Excited States in Beam-Foil Spectroscopy.
H⁻: EL
He I, Li I, II: EL CL W
3815. Grinchuk, V. A.; Delone, G. A.; Petrosyan, K. B.; Kratk. Soobshch. Fiz. **3**, 32-36 (1975).
An Investigation of Spectrum Shift of the Cs Atom in Circularly Polarized Field.
Cs I: SE
3816. Lee, T. N.; Nagel, D. J.; J. Appl. Phys. **46**(9), 3784-3788 (1975).
X-Ray Emission from Laser-Produced Magnesium Plasmas.
Mg X-XII: ND W
3817. Roy, A. C.; Sil, N. C.; Phys. Rev. A **14**(1), 68-75 (1976).
Excitation of $^3\text{P}(2p)^2$ State of Helium by Electron Impact.
He I: EL
3818. Newman, D. J.; Solid State Commun. **18**(5), 667-668 (1976).
The Ground State Splitting in Gd^{3+} and Eu^{2+} .
Eu III, Gd IV: AT
3819. Stebbings, R. F.; Latimer, C. J.; West, W. P.; Dunning, F. B.; Cook, T. B.; Phys. Rev. A **12**(4), 1453-1458 (1975).
Studies of Xenon Atoms in High Rydberg States.
Xe I: W
3820. Huber, G.; Klapisch, R.; Thibault, C.; Duong, H. T.; Juncar, P.; Liberman, S.; Pinard, J.; Vialle, J. L.; Jacquinet, P.; C. R. Acad. Sci. Ser. B **282**, 119-124 (1976).
Détermination par spectroscopie laser des moments quadripolaires de noyaux radioactifs de sodium.
Na I: Hfs
3821. Hotop, H.; Mahr, D.; J. Phys. B **8**(13), L301-L304 (1975).
On the 584.3 Å Photoelectron of Ba.
Ba II: EL
3822. Hansen, J. E.; J. Phys. B **8**(16), L403-L406 (1975).
Interpretation of the 21.2 eV Photoelectron Spectrum of Atomic Ba.
- Ba I: AT
- 3823A. Harvey, K. C.; Diss. Abstr. Int. B **36**(5), 2309 (1975).
Doppler-Free Two-Photon Spectroscopy.
Na I: EL
3824. Johnson, L. P.; Morrison, J. D.; Int. J. Mass Spectrom. Ion Phys. **18**(4), 355-366 (1975).
Double Ionization to Low-Lying States of the Doubly-Charged Rare Gases.
Ne II, Ar II, Kr II, Xe II: IP
3825. Teague, M. R.; Lambropoulos, P.; Goodmanson, D.; Norcross, D. W.; Phys. Rev. A **14**(3), 1057-1064 (1976).
Theory of Two-Photon Ionization of Cesium.
Cs I: AT
3826. Eibofner, A.; Z. Phys. A **277**(3), 225-231 (1976).
Measurements of the $P_{3/2}$ — $S_{1/2}$ -Intervals in the $n = 4$, $n = 5$ and $n = 6$ States of Ionized Helium.
He II: EL QF
3827. Grinchuk, V. A.; Petrosyan, K. B.; Kratk. Soobshch. Fiz. **1**, 34-37 (1975).
Measurement of Energy Change of 6s-6f Transition of Cs Atoms in the Field of Optical Radiation Frequency.
Cs I: QF
3828. Seaton, M. J.; J. Phys. B **9**(17), 3001-3007 (1976).
The Term Systems of Be I Converging to the Be II 2s Limit.
Be I: IP
3829. Buchet, J. P.; Buchet-Poulizac, M. C.; Druetta, M.; J. Opt. Soc. Am. **66**(8), 842-845 (1976).
Lifetime Measurements in O VI, O V, and O IV Between 100 and 1700 Å.
O IV-VI: W
3830. Norcross, D. W.; Seaton, M. J.; J. Phys. B **9**(17), 2983-3007 (1976).
Energy Levels for Be I Calculated Using a Model Potential and Cores Approximation.
Be I: PT
3831. Paisner, J. A.; May, C. A.; Carlson, L. R.; Worden, E. F.; Johnson, S. A.; Solarz, R. W.; Univ. Calif. Radiat. Lab., UCRL-78736, 12 pp. (1976).
Hyperfine Structure Measurements in ^{235}U I.
U I: Hfs
3832. Lin, C. D.; Phys. Rev. A **14**(1), 30-35 (1976).
Properties of Resonance States in H⁻.
H⁻: AT
3833. Tai, C.; Happer, W.; Gupta, R.; Phys. Rev. A **12**(3), 736-747 (1975).
Hyperfine Structure and Lifetime Measurements of the Second-Excited D States of Rubidium and Cesium by Cascade Fluorescence Spectroscopy.
Rb I, Cs I: Hfs
3834. Minnhagen, L.; J. Opt. Soc. Am. **66**(7), 659-667 (1976).
 $2p^33s$, $3p$, $3d$, $4s$, and $4d$ Configurations of Triply Ionized Sodium, Na IV.
Na IV: EL ND CL W PT
3835. Yamagishi, M.; Wadatani, K.; J. Geomagn. Geoelectr. **26**(3), 355-358 (1974).
Laboratory Emission of OIA5577. 3. On the Behaviour of the Carbon-Dioxide Gas in a Xenon Discharge.
O I: W
3836. Ivanov, L. N.; Letokhov, V. S.; Sov. J. Quantum Electron. **5**(3), 329-332 (1975).
Selective Ionization of Atoms in Optical and Electrical

3. Bibliography Ordered by Reference Numbers—Continued

- Fields.
Rb I: AT
3837. Adachi, H.; Asai, S.; Imoto, S.; Technol. Rep. Osaka Univ. **26**(1310), 389–396 (1976).
Relativistic Dirac–Slater Calculations for the Neutral Uranium Atom.
U I: PT
3838. Rodgers, J. E.; Roy, R.; Das, T. P.; Phys. Rev. A **14**(2), 543–551 (1976).
Many-Body Calculation of the Electric Field Gradient in the Aluminum Atom.
Al I: AT
3839. Lunell, S.; Laskowski, B.; Van Leuven, P.; Ann. Phys. (NY) **98**(2), 451–461 (1976).
Hyperfine Structure Constants in the Li Atom by the Projected Hartree–Fock Method.
Li I: Hfs AT
3840. Aglitskii, E. V.; Boiko, V. A.; Pikuz, S. A.; Faenov, A. Ya.; Sov. Phys. – Lebedev Inst. Rep. **4**, 30–33 (1976).
Survey Table of the Wavelengths of the Li–Like Ions K . . . Fe in the X-Ray Region of the Spectrum.
K XVII, Ca XVIII, Sc XIX, Ti XX: CL
V XXI, Cr XXII, Mn XXIII, Fe XXIV: CL
3841. Poulsen, O.; Ramanujam, P. S.; Phys. Rev. A **14**(4), 1463–1467 (1976).
Time-Differential Level-Crossing g-Value Measurements of the $6p^2P$ Fine-Structure Levels in ^{138}Ba II Using an Optical-Induced Orientation or Alignment of a Fast Ionic Beam.
Ba II: ZE
3842. Minemoto, T.; Kakihara, K.; J. Phys. Soc. Jpn. **41**(3), 984–990 (1976).
Magnetic Resonance in $6^2P_{3/2}$ and $7^2P_{3/2}$ States of ^{133}Cs Atom in a Medium Magnetic Field.
Cs I: ZE Hfs
3843. Nussbaumer, H.; J. Phys. B **9**(10), 1757–1763 (1976).
Two-Electron One-Photon Transitions in Heavy Ion Collisions.
Fe XIX, XXIV, Ni XXI, XXVI: AT
3844. Nogami, Y.; Vallieres, M.; van Dijk, W.; Am. J. Phys. **44**(9), 886–889 (1976).
Hartree–Fock Approximation for the One Dimensional "Helium Atom".
He I: AT
3845. Beyer, H. J.; Kollath, K. J.; J. Phys. B. **10**(1), L5–L9 (1977).
Electric-Field-Induced Singlet-Triplet Anticrossing in Helium.
He I: EL SE
3846. Brechignac, C.; Gerstenkorn, S.; J. Phys. B **10**(3), 413–419 (1977).
Isotope-Shift Measurements in Even Stable Isotopes of Krypton (78, 80, 82, 84, 86) by Means of Laser Techniques.
Kr I: IS
3847. Detrich, J.; Certain, P. R.; J. Chem. Phys. **65**(5), 2036–2037 (1976).
Hartree–Fock Calculation of 2P Fine Structure Splittings in Sodium and Potassium.
Li I, Na I, K I: AT
3848. Beyer, H. J.; Kollath, K. J.; J. Phys. B **9**(8), L185–L188 (1976).
Measurement of the 1D – 3D Intervals in Highly Excited States of Helium.
He I: EL
3849. Kozlov, M. G.; Kotochigova, S. A.; Opt. Spectrosc. (USSR) **41**(3), 208–212 (1976).
Absorption Spectra of Rare-Earth Elements in the Schumann Region: Europium.
Eu I: EL ND CL W
3850. Korolev, F. A.; Martynov, V. V.; Odintsov, V. I.; Fakhmi, A. O.; Opt. Spectrosc. (USSR) **40**(6), 600–603 (1976).
Stimulated and Parametric Emission in Rb Vapor in Two-Photon Excitation of $5^2D_{3/2,5/2}$ and $7^2S_{1/2}$ Levels.
Rb I: W
3851. Edlen, B.; Boden, E.; Phys. Scr. **14**(1–2), 31–38 (1976).
The Na I-Like Spectra of Potassium and Calcium, K IX and Ca X.
K IX, Ca X: EL ND CL W
K VII, VIII: W
3852. Barkley, P. G.; Hegstrom, R. A.; Phys. Rev. A **14**(4), 1574–1575 (1976).
Effect of Nuclear Mass on $g_j(\text{He}, 2^3S_1)$.
He I: AT
3853. Astner, G.; Curtis, L. J.; Liljeby, L.; Mannervik, S.; Martinson, I.; J. Phys. B **9**(12), L345–L348 (1976).
Measurements of the $n^3D_1 - n^3D_2$ ($n=3-8$) Fine Structure Separations in ^4He I by the Beam Foil Quantum-Beat Method.
He I: EL
3854. Andrews, D. A.; Newton, G.; Phys. Rev. Lett. **37**(19), 1254–1257 (1976).
Radio-Frequency Atomic Beam Measurement of the ($2^2S_{1/2}, F=0$) – ($2^2P_{1/2}, F=1$) Lamb-Shift Interval In Hydrogen.
H I: QF
3855. Baird, P. E. G.; Proc. R. Soc. London, Ser. A **351**, 267–275 (1976).
Isotope Shifts and Hyperfine Structure in the Atomic Spectrum of Palladium.
Pd I: Hfs IS
3856. Baudinet–Robin, Y.; Dumont, P. D.; Biemont, E.; Grevesse, N.; Phys. Scr. **11**, 371–374 (1975).
Lifetimes and Transition Probabilities in N V.
N V: W
3857. Collins, C. B.; Curry, S. M.; Johnson, B. W.; Mirza, M. Y.; Chellehmalzadeh, M. A.; Anderson, J. A.; Popescu, D.; Popescu, I.; Phys. Rev. A **14**(5), 1662–1671 (1976).
Multiphoton Ionization of Rubidium.
Rb I: EL
3858. Champeau, R. J.; Verges, J.; Physica (Utrecht) **83C**(3), 373–378 (1976).
Déplacement Isotopique dans le Spectre Infrarouge du Cerium.
Ce I, II: IS AT
3859. Belin, G.; Holmgren, L.; Svanberg, S.; Phys. Scr. **14**(1–2), 39–47 (1976).
Hyperfine Interaction, Zeeman and Stark Effects for Excited States in Cesium.
Cs I: ZE SE Hfs AT
3860. Eibofner, A.; Phys. Lett. A **58**(4), 219–220 (1976).
Measurement of the Lamb Shift in the $n=4$ State of Ionized Helium.
He I: QF
3861. Belin, G.; Holmgren, L.; Svanberg, S.; Phys. Scr. **13**(6),

3. Bibliography Ordered by Reference Numbers—Continued

- 351-362 (1976).
Hyperfine Interaction, Zeeman and Stark Effects for
Excited States in Rubidium.
Rb I: ZE SE Hfs AT
3862. Fred, M.; Tomkins, F. S.; Blaise, J. E.; Camus, P.;
Verges, J.; J. Opt. Soc. Am. **67**(1), 7-23 (1977).
Term Analysis of the Spectrum of Neutral Neptunium
(Np I).
Np I: EL ND ZE PT
3863. Burkhalter, P. G.; Dozier, C. M.; Nagel, D. J.; Phys.
Rev. A **15**(2), 700-717 (1977).
X-Ray Spectra from Exploded-Wire Plasmas.
Mo XXXIII, Ag XXXVIII, Dy XXXIX: EL ND CL W
W XLVII, Pt LI, Au LII: EL ND CL W
3864. Pejcev, V.; Ross, K. J.; Rassi, D.; Ottley, T. W.; J.
Phys. B **10**(3), 459-469 (1977).
The Ejected-Electron Spectrum of Cadmium Vapour:
Autoionizing Levels Excited by 15 to 400 eV Electrons.
Cd I: W
3865. Brueckner, G.; Solar Gamma-, X-, and EUV Radiation, Ed.
S. R. Kane, pp. 135-151 (D. Reidel Pub. Co., The
Netherlands, 1975).
Ultraviolet Emission Line Profiles of Flares and Active
Regions.
Fe XXI: CL W
3866. Litzen, U.; Phys. Scr. **14**(4), 165-169 (1976).
New Levels and Classifications in Fe I.
Fe I: EL ND CL W PT
3867. Tiwary, S. N.; Rai, D. K.; J. Phys. B **9**(4), 631-633
(1976).
Excitation of the Autoionizing Level in Zn I and Cd I.
Zn I, Cd I: EL
3868. Ottley, T. W.; Ross, K. J.; J. Phys. B **8**(11), L249-L252
(1975).
Ejected-Electron Spectra of Potassium Autoionization
Levels Obtained by Electron Impact Excitation at 29 eV
and 500 eV Incident Energies.
K I: W
3869. Veillette, P.; Marchand, P.; Int. J. Mass Spectrom. Ion
Phys. **18**(2), 165-178 (1975).
Photon Detection of Doubly Excited States of Argon
Produced by Electron Impact.
Ar I: EL ND
3870. Ahmad, S. A.; Sakkena, G. D.; Venugopalan, A.; Physica
(Utrecht) **81C**(2), 366-375 (1976).
Isotope Shift Studies in Gadolinium Spectra.
Gd I, II: IS
3871. Wyart, J. F.; Phys. Scr. **12**(1-2), 33-41 (1975).
Mélange de Configurations dans les Spectres du Titane et
du Vanadium Plusieurs Fois Ionisés.
Ti III, V III, IV: PT
3872. Mulks, C. F.; Lee, T.; Das, T. P.; Mahanti, S. D.; Phys.
Rev. A **13**(3), 1271-1273 (1976).
Hyperfine Interaction in Excited States of Rubidium and
Cesium: S States.
Rb I, Cs I: Hfs
3873. Schmelling, S. G.; Brink, G. O.; Phys. Rev. A **12**(6),
2498-2500 (1975).
Observation of the 3F Metastable States of Neutral
Barium.
Ba I: EL ZE
3874. Livingston, A. E.; J. Phys. B **9**(9), L215-L218 (1976).
New Identifications in the Spectra of Kr IV - Kr VII.
Kr IV-VII: CL
3875. Kaliteevskii, N. I.; Chaika, M. P.; Sov. J. Quantum
Electron. **6**(4), 387-390 (1976).
Level Crossing Method Compared with Recent Achievements
in High-Resolution Laser Spectroscopy.
Na I: Hfs
3876. Deutsch, C.; Phys. Rev. A **13**(6), 2311-2313 (1976).
Rydberg States of He I Using the Polarization Model.
He I: PT
3877. Cahuzac, P.; Damaschini, R.; Opt. Commun. **20**(1), 111-114
(1977).
Pressure Effects in a Saturated-Absorption Experiment on
the 587.5 nm Helium Line.
He I: EL CL W
3878. Ekberg, J. O.; Phys. Scr. **14**(3), 109-121 (1976).
Term Analysis of Cr III.
Cr III: EL ND CL W PT
3879. Hawk, I. L.; Hardcastle, D. L.; J. Comput. Phys. **21**(2),
197-207 (1976).
Finite-Difference Solution to the Schroedinger Equation
for the Ground State and First Excited State of Helium.
He I: PT
3880. Armstrong, J. A.; Esherrick, P.; Wynne, J. J.; Phys. Rev.
A **15**(1), 180-196 (1977).
Bound Even-Parity $J=0$ and 2 Spectra of Ca: A Multichannel
Quantum-Defect Theory Analysis.
Ca I: EL ND CL W PT
3881. van Kleef, T. A. M.; Raassen, A. J. J.; Joshi, Y. N.;
Physica (Utrecht) **84C**, 401-416 (1976).
Fifth Spectrum of Copper: Cu V.
Cu V: EL ND CL W PT
3882. Ross, K. J.; Ottley, T. W.; Pejcev, V.; Rassi, D.; J.
Phys. B **9**(18), 3237-3245 (1976).
The Ejected-Electron Spectrum of Sodium Vapour
Autoionizing Levels Excited by 35 to 400 eV Electrons.
Na I: EL CL W
3883. Grant, I. P.; Mayers, D. F.; Pyper, N. C.; J. Phys. B
9(16), 2777-2796 (1976).
Studies in Multiconfiguration Dirac-Fock Theory. I. The
Low-Lying Spectrum of Hf III.
Hf III: AT
3884. Kozlov, M. G.; Krylov, B. E.; Opt. Spectrosc. (USSR)
41(5), 428-431 (1976).
Atomic Constants Characterizing the Absorption Spectrum
of Thallium Vapor in the 2030-600-Å Region.
Tl I: EL CL W
3885. Dumont, P. D.; Baudinet-Robinet, Y.; Livingston, A. E.;
Phys. Scr. **13**(6), 365-369 (1976).
Beam-Foil Study of Nitrogen in the Vacuum Ultraviolet.
N II, III, V: CL
3886. Wendin, G.; J. Phys. B **9**(11), L297-L302 (1976).
On the Character of the $4d^4f^1P$ Resonance in Ba I.
Ba I: AT
3887. Buttgenbach, S.; Dicke, R.; Gebauer, H.; Phys. Lett. A
58(1), 56-58 (1976).
Electronic g Factors for Eleven Atomic States of Zr.
Zr I: ZE
3888. Trabert, E.; Heckmann, P. H.; Buttlar, H. v.; Brand, K.;
Z. Phys. A **279**(2), 127-133 (1976).
Beam-Foil Spectrum of Silicon in the Extreme UV.
Si VIII-XIV: CL W

3. Bibliography Ordered by Reference Numbers—Continued

3889. Ewart, P.; Purdie, A. F.; J. Phys. B **9**(15), L437-L441 (1976).
Laser Ionization Spectroscopy of Rydberg and Autoionization Levels in Sr I.
Sr I: EL CL W
3890. Alder, J. F.; Bombelka, R. M.; Kirkbright, G. F.; J. Phys. B **11**(2), 235-238 (1978).
Atomic Sulphur Lines Above the First Ionisation Limit.
S I: EL CL
3891. Flower, D. R.; Astron. Astrophys. **54**, 163-166 (1977).
Excitation of the Fe XII Spectrum in the Solar Corona.
Fe XII: W
3892. Aleksakhin, I. S.; Bogachev, G. G.; Ugrin, S. Yu.; Opt. Spectrosc. (USSR) **43**(4), 476-477 (1977).
Investigation of the Ba Emission Spectra in the 50-90-nm Region with Electron Impact Excitation of Atoms.
Ba III: W
3893. Andriessen, J.; Ray, S. N.; Lee, T.; Das, T. P.; Ikenberry, D.; Phys. Rev. A **13**(5), 1669-1681 (1976).
Many-Body Theory of Hyperfine Interaction in the Manganese Atom Including Relativistic Effects.
Mn I: Hfs
3894. Brimicombe, M. S. W. M.; Stacey, D. N.; Stacey, V.; Huhnermann, H.; Menzel, N.; Proc. R. Soc. London, Ser. A **352**(1668), 141-152 (1976).
Optical Isotope Shifts and Hyperfine Structure in Cd.
Cd I, II: Hfs IS
3895. Bunge, C. F.; Phys. Rev. A **14**(6), 1965-1978 (1976).
Accurate Determination of the Total Electronic Energy of the Be Ground State.
Be I: AT
3896. Cohen, L.; Behring, W. E.; J. Opt. Soc. Am. **66**(9), 899-904 (1976).
Wavelengths and Levels of the Na I Isoelectronic Sequence from K IX through Mn XV.
K IX, Ca X, Sc XI, Ti XII, V XIII: EL ND CL W
Cr XIV, Mn XV: EL ND CL W
3897. Diatta, C. S.; Czernichowski, A.; Chapelle, J.; Physica (Utrecht) **84C**(3), 425-431 (1976).
Experimental Study of Stark Broadening and Shift of the He I Line 4^1D-2^1P ($\lambda=4921 \text{ \AA}$) and its Forbidden Component 4^1F-2^1P ($\lambda=4920.35 \text{ \AA}$) for Electron Densities $7 \times 10^{14} \sim N_e [\text{cm}^{-3}] \sim 3 \times 10^{16}$.
He I: SE
3898. Flusberg, A.; Mossberg, T.; Hartmann, S. R.; Phys. Rev. A **14**(6), 2146-2158 (1976).
Hyperfine Structure, Isotopic Level Shifts and Pressure Self-Broadening of the 7^2P States of Natural Thallium by Doppler-Free Two Photon Absorption.
Tl I: Hfs IS
3899. Fredriksson, K.; Svanberg, S.; J. Phys. B **9**(8), 1237-1246 (1976).
Investigation of the Fine Structure in the 2^D Sequence of Sodium Using Level-Crossing Spectroscopy.
Na I: EL
3900. Gaupp, A.; Dufay, M.; Subtil, J. L.; J. Phys. B **9**(14), 2365-2371 (1976).
Fine- and Hyperfine-Structure Measurements in Doubly Excited $6^7\text{Li I } 1s2p^2 \text{ } ^4P$.
Li I: Hfs
3901. Hata, J.; Sakai, M.; J. Chem. Phys. **65**(3), 935-940 (1976).
Many-Body Perturbation Theory Applied to Be^+ Ion.
Be II: AT
3902. Hata, J.; Sakai, M.; Phys. Lett. A **57**(5), 419-421 (1976).
Core Polarization Study of Atomic Hyperfine Coupling Constant: The Be^+ Ion.
Be II: Hfs
3903. Huet, M.; Chantepie, M.; Opt. Commun. **18**(4), 529-532 (1976).
Facteur de Lande du niveau 8^3S_1 du mercure.
Hg I: ZE
3904. Huet, M.; J. Phys. (Paris) **37**(6), 693-697 (1976).
Constante de structure hyperfine de l'électron s dans la configuration $6s6d$ du mercure.
Hg I: Hfs
3905. Hutcheon, R. J.; Pye, J. P.; Evans, K. D.; Sol. Phys. **46**, 171-177 (1976).
The Spectrum of Ni XIX in the Solar Corona.
Ni XIX: W
3906. Kowalski, J.; Trager, F.; Z. Phys. A **278**(10), 1-3 (1976).
Hyperfine Structure of the $4s4p \text{ } ^1P_1$ -State of ^{67}Zn by Level Crossing Spectroscopy.
Zn I: Hfs
3907. Liao, P. F.; Bjorkholm, J. E.; Phys. Rev. Lett. **36**(26), 1543-1545 (1976).
Measurement of the Fine-Structure Splitting of the $4F$ State in Atomic Sodium Using Two-Photon Spectroscopy With a Resonant Intermediate State.
Na I: EL
3908. Lindgren, I.; Lindgren, J.; Martensson, A. M.; Z. Phys. A **279**(2), 113-125 (1976).
Many-Body Calculations of the Hyperfine Interaction of Some Excited States of Alkali Atoms, Using Approximate Brueckner or Natural Orbitals.
Na I, K I, Rb I: Hfs PT
3909. MacAdam, K. B.; Wing, W. H.; Phys. Rev. A **15**(2), 678-688 (1977).
Fine Structure of Rydberg States. III. New Measurements in D, F, and G States of ^4He .
He I: EL CL W
3910. Mehlman, G.; Weiss, A. W.; Esteve, J. M.; Astrophys. J. **209**, 640-641 (1976).
Revised Classification of Mg II Levels Between 59 and 63 eV.
Mg II: ND PT
3911. Mwana Umbela, I. S. K.; Astron. Astrophys. **53**(2), 243-248 (1976).
Stark Broadening of Carbon Lines in an ARC Plasma.
C I: SE
3912. Raassen, A. J. J.; van Kleef, T. A. M.; Physica (Utrecht) **85C**, 180-190 (1977).
Extended Analysis and Ionization Potential of the Fifth Spectrum of Nickel (Ni V).
Ni V: EL ND CL W IP PT
3913. Rozsnyai, B. F.; J. Quant. Spectrosc. Radiat. Transfer **17**, 77-88 (1977).
Spectral Lines in Hot Dense Matter.
Ge XIII, XIV, XIX: W
3914. Skrok, D.; Winkler, R.; Physica (Utrecht) **85C**(1), 214-218 (1977).
Level Classification in the Configurations $4f^6 5d 6s^2$ and $4f^7 5d 6p$ of $^{151,153}\text{Eu-I}$ by Isotope Shift Measurements.
Eu I: IS
3915. Smith, R. J.; Piacentini, M.; Wolf, J. L.; Lynch, D. W.;

3. Bibliography Ordered by Reference Numbers—Continued

- Phys. Rev. B **14**(8), 3419–3431 (1976).
Soft-X-Ray Appearance Potential Spectra of La and Ce from 0 to 1400 eV.
La I, Ce I: EL
3916. Taylor, K. T.; Burke, P. G.; J. Phys. B **9**(12), L353–L358 (1976).
Photoionization of Ground-State Carbon and Oxygen Atoms.
C I, O I: AT
3917. Van Deurzen, C. H. H.; J. Opt. Soc. Am. **67**(4), 476–480 (1977).
Analysis of 4–Ionized Vanadium (V V).
V V: EL ND CL W IP
3918. Van Zandt, J. R.; Adcock, J. C., Jr.; Griem, H. R.; Phys. Rev. A **14**(6), 2126–2132 (1976).
Shift and Width Measurements of the Stark-Broadened Ionized Helium Line at 1215 Å.
He I: SE
3919. Worden, E. F.; Hulet, E. K.; Gutmacher, R. G.; Conway, J. G.; At. Data Nucl. Data Tables **18**(5), 459–495 (1976).
The Emission Spectrum of Curium.
Cm I, II: CL W ZE IS
3920. Bromage, G. E.; Fawcett, B. C.; Mon. Not. R. Astron. Soc. **178**, 605–610 (1977).
The $2p^2$ – $2p3d$ Transition Array of Fe XXI and Isoelectronic Spectra.
P X, S XI, Ca XII, Ar XIII: EL PT
K XIV, Ca XV, Sc XVI, Ti XVII: PT
V XVIII, Cr XIX, Mn XX, Fe XXI: PT
3921. Bromage, G. E.; Fawcett, B. C.; Cowan, R. D.; Mon. Not. R. Astron. Soc. **178**, 599–604 (1977).
Classification of $2s^2p^n$ – $2s^2p^{n-1}$ Fe XVIII and Fe XIX Lines in Laser-Produced Plasma and Solar Spectra.
Fe XVIII, XIX: CL
3922. Bromage, G. E.; Fawcett, B. C.; Mon. Not. R. Astron. Soc. **178**, 591–598 (1977).
The $2p^4$ – $2p^3d$ Transition Array of the Fe XIX and Isoelectronic Ions.
S IX, Cl X, Ar XI, K XII, Ca XIII: PT
Sc XIV, Ti XV, V XVI, Cr XVII: PT
Mn XVIII, Fe XIX: PT
3923. Corliss, C. H.; J. Res. Nat. Bur. Stand. (U.S.) **77A**(4), 419–546 (1973).
Wavelengths and Energy Levels of the Second Spectrum of Cerium (Ce II).
Ce II: EL ND CL W ZE
3924. Gagne, J. M.; Nguyen Van, S.; Saint-Dizier, J. P.; Pianarosa, P.; J. Opt. Soc. Am. **66**(12), 1415–1416 (1976).
Isotope Shift of ^{234}U , ^{236}U , ^{238}U in U I.
U I: IS
3925. Harper, C. D.; Wheatley, S. E.; Levenson, M. D.; J. Opt. Soc. Am. **67**(5), 579–583 (1977).
Two-Photon Absorption Spectroscopy of Potassium Rydberg States.
K I: EL
3926. Kancerevicius, A.; Liet. Fiz. Rinkiny **16**(1), 49–59 (1976).
On the Calculation of the Iron Group Ions Spectra Including Pair-Excitations of the d^n -Shell.
Ni VIII, Cu IX, Zn X: PT
3927. Worden, E. F.; Conway, J. G.; J. Opt. Soc. Am. **66**(2), 109–121 (1976).
Energy Levels of the First Spectrum of Curium, Cm I.
Cm I: EL ND CL W ZE IS
3928. Moore, C. E.; Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.) **3**(5), 67 pp. (1975).
Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, N I, N II, N III.
N I–III: EL CL W IP
3929. Paisner, J. A.; Solarz, R. W.; Carlson, L. R.; May, C. A.; Johnson, S. A.; Univ. Calif. Radiat. Lab., UCRL–77537, 9 pp. (1975).
High Resolution Autoionization Spectra in Atomic Uranium.
U I: EL IP
3930. Panke, H.; Bell, F.; Betz, H. D.; Stehling, W.; Nucl. Instrum. Methods **132**, 25–28 (1976).
Lifetime Measurements of Prompt Multiplet Transitions in Highly Stripped Projectile Ions.
S XIV: CL
3931. Roy, D.; Carette, J. D.; J. Electron Spectrosc. Relat. Phenom. **9**(6), 483–486 (1976).
The Fine Structure of the Electroexcitation Function of the Kr $4p^5s$ and Xe $5p^56s$ States in the Autoionization Region.
Kr I, Xe I: EL CL W
3932. Roy, D.; Delage, A.; Carette, J. D.; J. Phys. B **9**(11), 1923–1931 (1976).
Resonances in the Differential Electron Excitation Cross Section of Bound States of Krypton in the Autoionization Region.
Kr I: EL CL W
3933. Schmitz, W.; Breuckmann, B.; Mehlhorn, W.; J. Phys. B **9**(16), L493–L497 (1976).
Low-Energy Electron Spectra of Atomic Ca and Sr Excited by 2 keV Electrons.
Ca I–III, Sr I, II: EL W
3934. Brillet, W. L.; Artru, M. C.; Phys. Scr. **14**(6), 285–289 (1976).
Extension of the Analysis of Quadruply Ionized Silicon (Si V).
Si V: EL CL W PT
3935. Brown, C. M.; Tilford, S. G.; Ginter, M. L.; J. Opt. Soc. Am. **67**(5), 584–606 (1977).
Absorption Spectrum of Ge I Between 1500 and 1900 Å.
Ge I: EL ND CL W IP PT
3936. Brown, C. M.; Tilford, S. G.; Ginter, M. L.; J. Opt. Soc. Am. **67**(5), 607–622 (1977).
Absorption Spectrum of Sn I Between 1580 and 2040 Å.
Sn I: EL ND CL W IP
3937. Brown, C. M.; Ginter, M. L.; Opt. Commun. **21**(2), 279–281 (1977).
Isotopic Selection Using Nuclear Spin Induced Electric Dipole Transitions.
Pb I: EL CL W
3938. Brunt, J. N. H.; King, G. C.; Read, F. H.; J. Phys. B **10**(7), 1289–1300 (1977).
Resonance Structure in Elastic Electron Scattering from Helium, Neon and Argon.
He⁺, Ne⁺, Ar⁺: EL
3939. Brunt, J. N. H.; King, G. C.; Read, F. H.; J. Phys. B **10**(3), 433–448 (1977).
A Study of Resonance Structure in Helium Using Metastable Excitation by Electron Impact with High Energy Resolution.

3. Bibliography Ordered by Reference Numbers—Continued

- He⁺, He I: EL
3940. Brunt, J. N. H.; King, G. C.; Read, F. H.; J. Phys. B **9**(13), 2195–2207 (1976).
A Study of Resonance Structure in Neon, Argon, Krypton and Xenon Using Metastable Excitation by Electron Impact with High Energy Resolution.
- Ne I, Ar I, Kr I, Xe I: EL
3941. Esherick, P.; Wynne, J. J.; Armstrong, J. A.; Opt. Lett. **1**(1), 19–21 (1977).
Spectroscopy of ³P^o States of Alkaline Earths.
- Ca I, Sr I: EL
3942. Esherick, P.; Phys. Rev. A **15**(5), 1920–1936 (1977).
Bound, Even-Parity J = 0 and J = 2 Spectra of Sr.
- Sr I: EL ND CL W PT
3943. Fawcett, B. C.; J. Opt. Soc. Am. **66**(6), 632–633 (1976).
Spectrum of Ca X and Spectral Observations of Calcium, Scandium, and Titanium.
- Ca IX, X, Sc XI, Ti XI: EL CL W
3944. Harper, C. D.; Levenson, M. D.; Opt. Commun. **20**(1), 107–110 (1977).
Measurement of the Diamagnetic Zeeman Shift of Potassium S and D Rydberg States.
- K I: ZE
3945. Irwin, D. J. G.; Kernahan, J. A.; Pinnington, E. H.; Livingston, A. E.; J. Opt. Soc. Am. **66**(12), 1396–1400 (1976).
Beam-Foil Mean-Life Measurements in Krypton.
- Kr II–V: ND
3946. Kozlov, M. G.; Kotochigova, S. A.; Opt. Spectrosc. (USSR) **42**(1), 1–3 (1977).
Classification of Energy Levels of the Ytterbium Atom.
- Yb I: EL ND
3947. Kupo, I.; Mekler, Y.; Eviatar, A.; Astrophys. J. **205**, L51–L53 (1976).
Detection of Ionized Sulfur in the Jovian Magnetosphere.
- S II: W
3948. Lewis, E. L.; Am. J. Phys. **45**(1), 38–40 (1977).
Hyperfine Structure in the Triplet States of Cadmium.
- Cd I: Hfs
3949. Livingston, A. E.; Garnir, H.; Baudinet-Robinet, Y.; Dumont, P. D.; Biemont, E.; Grevesse, N.; Astrophys. Lett. **17**, 23–25 (1976).
Radiative-Lifetime Measurements for Sulfur and Silicon Transitions Observed in Interstellar Absorption Spectra.
- S III: CL W
3950. Neumann, R.; Trager, F.; Kowalski, J.; zu Putlitz, G.; Z. Phys. A **279**(3), 249–253 (1976).
Isotope Shift of Calcium Isotopes with A = 40, 42, 43, 44, 46 and 48 by Laser Spectroscopy.
- Ca I: IS
3951. Parcell, L. A.; Langlois, J.; Sichel, J. M.; J. Phys. B **9**(14), 2385–2397 (1976).
Calculation of Doubly Excited Energy Levels of Rare Gas Atoms by A Frozen Core Superposition of Configurations Method I. Description of Method and Comparison with Experiment for Optically Allowed Levels of Ne.
- Ne I, II: AT
3952. Pejcev, V.; Rassi, D.; Ross, K. J.; Ottley, T. W.; J. Phys. B **10**(9), 1653–1657 (1977).
High-Resolution Ejected-Electron Spectrum of Rubidium Vapour Autoionising Levels Excited by Electrons with Kinetic Energies in the Range 27 to 400 eV.
- Rb I: EL
3953. Pejcev, V.; Ross, K. J.; J. Phys. B **10**(8), L291–L294 (1977).
Resonance Features in the Ejected-Electron Excitation Function of Caesium 5p⁵6s² 2P_{3/2} Autoionising Level.
- Cs I: EL
3954. Pescht, K.; Gerhardt, H.; Matthias, E.; Z. Phys. A **281**(3), 199–204 (1977).
Isotope Shift and HFS of D₁ Lines in Na–22 and 23 Measured by Saturation Spectroscopy.
- Na I: IS
3955. Pinnington, E. H.; Kernahan, J. A.; Donnelly, K. E.; J. Opt. Soc. Am. **67**(2), 162–168 (1977).
Beam-Foil Spectroscopy of Bromine from 450 to 1000 Å.
- Br V: ND
3956. Read, F. H.; Brunt, J. N. H.; King, G. C.; J. Phys. B **9**(13), 2209–2218 (1976).
The Classification of Resonances in Electron Impact on Neon, Argon, Krypton and Xenon.
- Ne II, Ar II, Kr II, Xe II: EL
3957. Samoilov, V. P.; Smirnov, Yu. M.; Starkova, G. S.; Opt. Spectrosc. (USSR) **42**(1), 22–23 (1977).
Excitation of Ne III by Electron Impact.
- Ne III: W
3958. Subtil, J. L.; Ceyzeriat, P.; Denis, A.; Desesquelles, J.; J. Phys. (Paris) **37**(11), 1299–1305 (1976).
Mesure de la structure hyperfine des niveaux quadruplets 1s² 2s2p (³P^o)–3p⁴D et –3d ⁴F^o de ¹⁴N III.
- N III: Hfs
3959. Tam, A. C.; J. Phys. B **9**(18), L559–L564 (1976).
Fine-Structure Intervals in the 3³P and n³D States of ⁴He.
- He I: EL
3960. Trabert, E.; Heckmann, P. H.; Buttlar, H. v.; Z. Phys. A **280**(1), 11–15 (1977).
Beam-Foil Lifetimes of O VII in the 10–100 ps-Range.
- O VII: W
3961. van Kleef, T. A. M.; Joshi, Y. N.; J. Opt. Soc. Am. **67**(4), 472–476 (1977).
Seventh Spectrum of Selenium: Se VII and the 3p⁵3d¹⁰ Configuration in Se VIII.
- Se VII: EL ND CL W
- Se III–VI: W
3962. Wyart, J. F.; Crosswhite, H. M.; Hussain, R.; Physica (Utrecht) **85C**, 386–392 (1976).
Energy Levels of Ho III.
- Ho III: EL ND PT
3963. Zon, B. A.; Katsnelson, B. G.; Mitin, Y. N.; Sholokhov, E. I.; Opt. Spectrosc. (USSR) **40**(4), 362–363 (1976).
Radiative Widths of Stark Components of Fine-Structure Levels of a Hydrogen Atom.
- H I: SE
3964. Krist, T.; Kuske, P.; Gaupp, A.; Wittmann, W.; Andra, H. J.; Phys. Lett. A **61**(2), 94–96 (1977).
Improved ²³Na I 3 ²P_{3/2} HFS Measurement Beyond the Natural Linewidth by Beam Laser Quantum Beats.
- Na I: Hfs
3965. Alvarez, E.; Arnesen, A.; Bengtson, A.; Hallin, R.; Niburg, M.; Nordling, C.; Noreland, T.; Phys. Scr. **18**, 54–56 (1978).
Optical Isotope Shifts in Ba II Even Isotopes with Lamb-Dip Technique.

3. Bibliography Ordered by Reference Numbers—Continued

3966. Ba II: IS
Moody, S. E.; Lambropoulos, M.; Phys. Rev. A **15**(4), 1497–1501 (1977).
ac Stark Effect in Multiphoton Ionization.
Na I: SE
3967. Weckstrom, K.; Nysten, K. E.; Phys. Scr. **14**(5), 218–220 (1976).
Beam-Foil Studies of 720 keV Aluminum Ions.
Al IV: W
3968. Ducas, T. W.; Zimmerman, M. L.; Phys. Rev. A **15**(4), 1523–1525 (1977).
Infrared Stark Spectroscopy of Sodium Rydberg States.
Na I: EL
3969. Bauer, M.; Baumann, M.; Liening, H.; Phys. Lett. A **60**(2), 101–102 (1977).
A Level-Crossing Experiment in the $6s6p\ ^1P_1$ State of ^{173}Yb with Additional Optical Pumping of the Ground State.
Yb I: Hfs
3970. Baumann, M.; Liening, H.; Lindel, H.; Phys. Lett. A **59**(6), 433–434 (1977).
Investigation of the Hfs in the $6s6p\ ^1P_1$ State of ^{173}Yb (I) by LC and AC Spectroscopy.
Yb I: Hfs
3971. Jones, L. A.; Kallne, E.; Thomson, D. B.; J. Quant. Spectrosc. Radiat. Transfer **17**(2), 175–180 (1977).
High Density Measurements of the Stark Broadened Profile of the He (II) 4686 Å Line.
He II: SE
3972. Hansen, J. E.; Ziegenbein, B.; Lincke, R.; Kelly, H. P.; J. Phys. B **10**(1), 37–45 (1977).
Observation and Interpretation of the Photoionization Cross Section of the Neutral Iron Atom (Fe I).
Fe I: EL ND CL W
3973. Cowley, C. R.; Cowley, A. P.; Aikman, G. C. L.; Crosswhite, H. M.; Astrophys. J. **216**, 37–41 (1977).
Element Identifications in Przybylski's Star.
Nd III: EL CL W
3974. Duong, H. T.; Jacquinet, P.; Juncar, P.; Liberman, S.; Pinard, J.; Vialle, J. L.; Huber, G.; Klapisch, R.; Thibault, C.; Proc. 5th Int. Conf. Atomic Physics, July 26–30, 1976, Berkeley, California, R. Marrus, M. Prior, and H. Shugart, Editors, pp. 215–225 (Plenum Press, New York, 1977).
High Resolution Laser Spectroscopy of Radioactive Sodium Isotopes.
Na I: IS
3975. Kepple, P. C.; Griem, H. R.; Naval Res. Lab. Memo. Rep. 3382, 19 pp. (1976).
Stark Profile Calculations for the Lines of the Al XIII Lyman Series Emitted in Dense Plasmas.
Al XIII: SE
3976. Hawkins, R. T.; Hill, W. T.; Kowalski, F. V.; Schawlow, A. L.; Svanberg, S.; Phys. Rev. A **15**(3), 967–974 (1977).
Stark-Effect Study of Excited States in Sodium Using Two-Photon Spectroscopy.
Na I: SE Hfs
3977. McIntyre, L. C.; Silver, J. D.; Jelley, N. A.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 331–338 (Plenum Press, New York, 1976).
Beam-Foil Spectroscopy of Highly Ionized Fluorine, Silicon, and Copper Beams.
F VI–IX, Si IX–XIII, Cu X–XIV: W
3978. Gallagher, T. F.; Hill, R. M.; Edelstein, S. A.; Phys. Rev. A **14**(2), 744–750 (1976).
Resonance Measurements of d–f–g–h Splittings in Highly Excited States of Sodium.
Na I: EL
3979. Stebbings, R. F.; Dunning, F. B.; Rundel, R. D.; Proc. 4th Int. Conf. Atomic Physics, July 22–26, 1974, Heidelberg, Germany, G. zu Putnitz, E. W. Weher, and A. Winnacker, Editors, pp. 713–730 (Plenum Press, New York, 1975).
Photoionization and Autoionization of Excited Rare Gas Atoms.
Ar I, Kr I, Xe I: CL W
3980. Lewis, M. L.; Proc. 4th Int. Conf. Atomic Physics, July 22–26, 1974, Heidelberg, Germany, G. zu Putnitz, E. W. Weber, and A. Winnacker, Editors, pp. 105–118 (Plenum Press, New York, 1975).
A New Value of the Fine Structure Constant from Helium Fine Structure.
He I: EL
3981. Pipkin, F. M.; Proc. 4th Int. Conf. Atomic Physics, July 22–26, 1974, Heidelberg, Germany, G. zu Putnitz, E. W. Weber, and A. Winnacker, Editors, pp. 119–139 (Plenum Press, New York, 1975).
Recent Fine Structure Measurements in Hydrogen Like Atoms.
H I, He II, Li III, C V: QF
3982. Andra, H. J.; Macek, J.; Silver, J.; Jelley, N.; McIntyre, L. C.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 2, I. A. Sellin and D. J. Pegg, Editors, pp. 877–884 (Plenum Press, New York, 1976).
On the Possibility of a Precise Measurement of the F VIII $1s2p\ ^3P_2$ – 3P_1 Finestructure Splitting.
F VIII: EL Hfs
3983. Berry, H. G.; Batson, C. H.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 367–375 (Plenum Press, New York, 1976).
Spectroscopy of Heavy Ions Using the Beam-Foil Technique.
Ar VII, VIII: CL W
3984. Buchet, J. P.; Denis, A.; Desesquelles, J.; Druetta, M.; Subtil, J. L.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 355–365 (Plenum Press, New York, 1976).
Beam-Foil Spectroscopy of High Ionised C, N, O and Ne Atoms at 1 MeV/Nucleon.
Ne VIII, IX, N V, O VI: EL CL W
3985. Davis, W. A.; Marrus, R.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 317–319 (Plenum Press, New York, 1976).
Radiative Decay of the 2^3P States of Heliumlike Argon.
Ar XVII: CL W
3986. Griffin, P. M.; Pegg, D. J.; Sellin, I. A.; Jones, K. W.; Pisano, D. J.; Kruse, T. H.; Bashkin, S.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J.

3. Bibliography Ordered by Reference Numbers—Continued

- Pegg, Editors, pp. 321–329 (Plenum Press, New York, 1976).
- Extreme Ultraviolet Spectra of Highly Stripped Silicon Ions.
Si: W
3987. Knystautas, E. J.; Drouin, R.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 377–384 (Plenum Press, New York, 1976).
Satellite Lines in Highly-Stripped Ions of B, C, N, O, and F.
B III, IV, C IV, V, N V: CL
O VI, VII, F V: CL
3988. Knystautas, E. J.; Drouin, R.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 393–400 (Plenum Press, New York, 1976).
Doubly-Excited States in N V and N VI.
N V, VI: CL W
3989. To, K. X.; Knystautas, E. J.; Drouin, R.; Berry, H. G.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 385–391 (Plenum Press, New York, 1976).
Doubly-Excited States in B III.
B III, IV: EL CL W
3990. Andra, H. J.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 2, I. A. Sellin and D. J. Pegg, Editors, pp. 835–851 (Plenum Press, New York, 1976).
Laser Excitation in Fast Beam Spectroscopy.
Sr I, Rb II, Ba II: Hfs
3991. Wolff, H. W.; Bruhn, R.; Radler, K.; Sonntag, B.; Phys. Lett. A **59**(1), 67–69 (1976).
Atomic Character of the 4d-Absorption of Ce Metal: an Experimental Proof.
Ce I: EL
3992. Augustyniak, L.; Phys. Scr. **15**(1), 63–64 (1977).
New Multipole Line at 4809.1 Å in the Spectrum of Bi III.
Bi III: CL Hfs
3993. Barger, R. L.; English, T. C.; West, J. B.; Opt. Commun. **18**(1), 58–59 (1976).
Laser Saturated Absorption of the Calcium $^1S_0 - ^3P_1$ Transition at 6573 Å.
Ca I: W
3994. Bjorkholm, J. E.; Liao, P. F.; Opt. Commun. **21**(1), 132–136 (1977).
ac Stark Splitting of Two-Photon Spectra.
Na I: SE Hfs
3995. Bryant, H. C.; Dieterle, B. D.; Donahue, J.; Sharifian, H.; Tootoonchi, H.; Wolfe, D. M.; Gram, P. A. M.; Yates-Williams, M. A.; Phys. Rev. Lett. **38**(5), 228–230 (1977).
Observation of Resonances Near 11 eV in the Photo detachment Cross Section of the H^- Ion.
 H^- : EL
3996. Hermann, G.; Lasnitschka, G.; Scharmann, A.; Phys. Lett. A **61**(2), 99–100 (1977).
New g_J -Values and Pressure Induced g_J -Shift of the Neon $2p_4$ Level Measured by Optical-Optical Double Resonance.
Ne I: ZE
- 3997A. Tsekeris, P.; Diss. Abstr. Int. B **37**(2), 820 (1976).
Hyperfine-Structure Measurements in Excited States of Alkali Atoms by cw Dye Laser Spectroscopy.
Rb I, Cs I, Na I: Hfs
3998. Childs, W. J.; Goodman, L. S.; J. Opt. Soc. Am. **67**(6), 747–751 (1977).
Hyperfine-Structure and Isotope-Shift Measurements on Dy $\lambda 5988.562$ Using High-Resolution Laser Spectroscopy and an Atomic Beam.
Dy I: Hfs
3999. Chu, S.; Commins, E. D.; Conti, R.; Phys. Lett. A **60**(2), 96–100 (1977).
Observation of the $6^2P_{1/2} - 7^2P_{1/2}$ M1 Transition in Atomic Thallium Vapor.
Tl I: W
4000. Dozier, C. M.; Burkhalter, P. G.; Nagel, D. J.; Stephanakis, S. J.; Mosher, D.; J. Phys. B **10**(3), L73–L77 (1977).
High Ionization States in Exploded-Wire Plasmas.
Cu XXVIII, Ag XXXVIII, Au LII: TA
4001. Farley, J.; Tsekeris, P.; Gupta, R.; Phys. Rev. A **15**(4), 1530–1536 (1977).
Hyperfine-Structure Measurements in the Rydberg S and P States of Rubidium and Cesium.
Rb I, Cs I: Hfs
4002. Williams, J. F.; J. Phys. B **9**(9), 1519–1527 (1976).
The 2S and 2P State Excitation of Atomic Hydrogen by Electron Impact.
 He^- : EL
4003. Andersen, N.; Olsen, J. O.; J. Phys. B **10**(18), L719–L722 (1977).
Autoionising Neon Levels Excited in 5–10 keV Collisions with Lithium and Sodium.
Ne I: EL CL
4004. Forester, J. P.; Peterson, R. S.; Griffin, P. M.; Pegg, D. J.; Haselton, H. H.; Liao, K. H.; Sellin, I. A.; Mowat, J. R.; Thoe, R. S.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 451–459 (Plenum Press, New York, 1976).
Autoionizing States in Highly Ionized Oxygen, Fluorine, and Silicon.
O VI, F VII, Si XII: EL CL W
4005. Fredriksson, K.; Svanberg, S.; Z. Phys. A **281**(3), 189–197 (1977).
Stark Interaction for Excited States in Alkali Atoms, Investigated by Laser Spectroscopy.
Rb I, Cs I: SE
4006. Garpman, S.; Spector, N.; J. Opt. Soc. Am. **66**(9), 904–908 (1976).
Transition Probabilities for the $5p^46p - 5p^46s$ Array of Xe II.
Xe II: ND
4007. Guern, Y.; Bideau-Mehu, A.; Abjean, R.; Johannin-Gilles, A.; Phys. Scr. **14**(6), 273–276 (1977).
Structure hyperfine de la transition $^2S_{1/2} - ^2P_{1/2}$ de Hg II ($\lambda = 194.2$ nm).
Hg II: Hfs IS
4008. Hutcheon, R. J.; Pye, J. P.; Evans, K. D.; Astron. Astrophys. **51**(3), 451–460 (1976).
Weak Fe XVII Transitions in the Coronal X-Ray Spectrum.
Fe XVII: W IP
4009. Johansson, S.; Astrophys. J. **212**, 923–924 (1977).
Newly Identified Fe II Lines in the Solar Limb Spectrum.

3. Bibliography Ordered by Reference Numbers—Continued

- Fe II: EL CL W
4010. Johns, J. W. C.; McKellar, A. R. W.; Riffin, M.; J. Chem. Phys. **66**(9), 3962-3964 (1977).
Laser Magnetic Resonance of Hg (6^3P_0) Atoms.
Hg I: EL
4011. Kancerevicius, A.; Liet. Fiz. Rinkiny **15**(3), 359-368 (1975).
On the Calculation of Some Excited States of Atoms.
He I, Li I, C I, N II: TE
4012. Kancerevicius, A.; Liet. Fiz. Rinkiny **15**(2), 215-220 (1975).
Doubly Charged Negative Ions of the Second and Third Row Atoms.
 B^{-} , C^{-} , N^{-} , O^{-} , Al^{-} , Si^{-} , P^{-} , S^{-} : TE
4013. Keesing, R. G. W.; Proc. R. Soc. London, Ser. A **352**, 429-439 (1977).
High Resolution Studies of Electron Excitation V. The Metastable States of Helium.
He I: EL W
4014. Klapisch, M.; Schwob, J. L.; Fraenkel, B. S.; Oreg, J.; J. Opt. Soc. Am. **67**(2), 148-155 (1977).
The $1s-3p$ $K\beta$ -Like X-Ray Spectrum of Highly Ionized Iron.
Fe IX-XVIII, XXIV, XXVI: CL W
4015. Kuriyan, M.; Pritchard, H. O.; Can. J. Chem. **54**(10), 1543-1549 (1976).
Highly Excited $1s$ States of the Helium Atom.
He I: AT
4016. Langlois, J.; Sichel, J. M.; J. Phys. B **9**(12), L341-L344 (1976).
On the Relative Importance of Channels from a Common Configuration—the 45.0 eV Autoionizing Resonance of Ne.
Ne I: PT
4017. Lee, T.; Rodgers, J. E.; Das, T. P.; Sternheimer, R. M.; Phys. Rev. A **14**(1), 51-55 (1976).
Theory of Negative Fine and Hyperfine Structure in Excited States of Rubidium: 4^2D State.
Rb I: Hfs
4018. Lindgren, I.; Lindgren, J.; Martensson, A. M.; Phys. Rev. A **15**(5), 2123-2125 (1977).
Comments on the Hyperfine Structure of the 4^2D State of Rubidium.
Rb I: Hfs
4019. Ma, I. J.; zu Putlitz, G.; Z. Phys. A **277**(2), 107-111 (1976).
On the Electric Nuclear Quadrupole Moments of $^{135,137}\text{Ba}$.
Ba I, II: Hfs
4020. Miron, E.; Levin, L. A.; Erez, G.; Lavi, S.; Opt. Commun. **18**(4), 536-538 (1976).
Continuous Scanning of Atomic Uranium Levels.
U I: EL
4021. Morlais, M.; Rupin, J. M.; Robin, S.; C. R. Acad. Sci., Ser. B **284**(18), 385-388 (1977).
Etudes des spectres d'absorption ultraviolets des melanges Xe-Kr, Xe-A et Kr-A dans le domaine 1150-1300 Å.
Kr I, Xe I: W
4022. Nella, J.; Szeto, S. Y.; Rabinowitz, P.; LaTourrette, J. T.; IEEE J. Quantum Electron. **12**(9), 543-547 (1976).
Saturated Spectroscopy Applied to Xenon at 3.5 μm .
Xe I: IS
4023. Nesbet, R. K.; Phys. Rev. A **14**(4), 1326-1332 (1976).
 He^{-} Resonances and the Post-Collision Interaction.
- He^{-} : EL AT
4024. Olsen, J. O.; Andersen, N.; J. Phys. B **10**(1), 101-110 (1977).
Autoionizing Levels in Neon Excited by Low Energy Heavy-Ion Impact.
Ne I: CL
4025. Prior, M. H.; Wang, E. C.; Phys. Rev. A **16**(1), 6-18 (1977).
Hyperfine Structure of the $2s$ State of $^3\text{He}^{+}$.
He II: Hfs
4026. Rajnak, K.; Phys. Rev. A **14**(6), 1979-1988 (1976).
Hartree-Fock Calculations for Many Configurations of U I.
U I: AT
4027. Reid, R. D.; Johnson, W. L.; McNeil, J. R.; Collins, G. J.; IEEE J. Quantum Electron. **12**, 778-779 (1976).
New Infrared Laser Transitions in Ag II.
Ag II: CL W
4028. Ross, K. J.; Ottley, T. W.; Phys. Lett. A **54**(1), 57-58 (1975).
Ejected Electron Spectrum of Rubidium Autoionizing Levels Obtained by Electron Impact Excitation.
Rb I: W
4029. Roy, D.; Phys. Rev. Lett. **38**(19), 1062-1065 (1977).
Resonances Below the $n = 3$ Doubly Excited States of Helium.
 He^{-} : EL
4030. Rubbmark, J. R.; Borgstrom, S. A.; Bockasten, K.; J. Phys. B **10**(3), 421-432 (1977).
Absorption Spectroscopy of Laser-Excited Barium.
Ba I: EL ND CL W
4031. Salour, M. M.; Opt. Commun. **18**(3), 377-380 (1976).
Determination of Fine Structure Intervals in a Series of Excited Sodium D States Using Doppler Free Two-Photon Spectroscopy.
Na I: EL
4032. Smitt, R.; Sol. Phys. **51**(1), 113-119 (1977).
Identifications of Forbidden Coronal Lines of Fe X and Ni XII.
Fe X, Ni XII: CL W
4033. Suzer, S.; Lee, S. T.; Shirley, D. A.; J. Chem. Phys. **65**(1), 412-417 (1976).
PES of Atomic and Molecular Bismuth.
Bi II: EL
4034. Buchet, J. P.; Thesis, Devant L'Univ. Claude Bernard-Lyon, 264 pp. (1976).
Etude, au moyen de faisceaux d'ions acceleres, des elements leger ($z \leq 10$) fortement ionises: spectres dans l'UV lointain, durees de vie radiatives et forces d'oscillateur.
He I, II, Li I-III, B III, IV: W
C IV-VI, N V-VII, O VI-VIII: W
Ne VIII-X: W
4035. Tetu, M.; Fortin, R.; Savard, J. Y.; IEEE Trans. Instrum. Meas. **25**(4), 477-480 (1976).
A New Determination of the Rb85 Unperturbed Hyperfine Transition Frequency.
Rb I: Hfs
4036. To, K. X.; Drouin, R.; Phys. Scr. **14**(6), 277-280 (1976).
Etude des distributions des etats de charge a l'equilibre d'ions energetiques de bore dans le carbon et observation de niveaux d'energie doublement excites du B III.

3. Bibliography Ordered by Reference Numbers—Continued

- B III: EL ND CL W
4037. Aglitskii, E. V.; Zherikhin, A. N.; Kriukov, P. G.; Chekalin, S. V.; Opt. Commun. **20**(1), 86–88 (1977).
X-Ray Spectra of Plasmas Created with Ultrashort Laser Pulses.
Ti II–XIV: W
4038. Ahmad, S. A.; Saksena, G. D.; Physica (Utrecht) **85C**, 191–200 (1977).
Isotope Shift Studies in Neodymium Spectra–I.
Nd I, II: CL IS
4039. Aleksandrov, E. B.; Prilipko, V. K.; Khartung, K.; Opt. Spectrosc. (USSR) **42**(4), 349–351 (1977).
Investigation of the Structure of $5d[7/2]_{3,4} \rightarrow 6p[5/2]_{2,3}$ Transitions in Xenon by Laser Spectroscopy and Double Resonance Methods.
Xe I: IS
4040. Beahn, T. J.; Bedard, F. D.; Phys. Rev. A **15**(1), 203–212 (1977).
Measurement of $g_f(\text{Rb}^{87})/g_f(\text{K}^{39})$ by Spin-Exchange Optical Pumping.
Rb I: ZE
4041. Bjorkholm, J. E.; Liao, P. F.; Opt. Commun. **18**(2), 229 (1976).
Measurement of the 4F State Fine-Structure Splitting in Atomic Sodium Using a Non Allowed Two-Photon Transition.
Na I: EL
4042. Boiko, V. A.; Pikuz, S. A.; Safronova, U. I.; Faenov, A. Ya.; Sov. J. Quantum Electron. **7**(3), 333–336 (1977).
Analysis of the Intensities of Resonance Line Satellites of H-Like Ions in Laser Plasma.
Mg XI, XII, Al XII, XIII, Si XIII, XIV: CL W
P XIV, XV, S XV, XVI: CL W
4043. Boiko, V. A.; Pikuz, S. A.; Safronova, U. I.; Faenov, A. Ya.; J. Phys. B **10**(7), 1253–1263 (1977).
Spectra of Be-Like Ions with Nuclear Charge $Z = 22, \dots, 34$ from Laser-Produced Plasmas.
Ti XIX, V XX, Cr XXI, Mn XXII: CL W AT
Fe XXIII, Co XXIV, Ni XXV, Cu XXVI: CL W AT
Zn XXVII, Ge XXIX, Se XXXI: CL W AT
4044. Burrow, P. D.; Michejda, J. A.; Comer, J.; J. Phys. B **9**(18), 3225–3236 (1976).
Low-Energy Scattering from Mg, Zn, Cd and Hg: Shape Resonances and Electron Affinities.
 $\text{Mg}^-, \text{Zn}^-, \text{Cd}^-, \text{Hg}^-$: EL
4045. Buttgenbach, S.; Dicke, R.; Gebauer, H.; Herschel, M.; Z. Phys. A **280**, 217–226 (1977).
Hyperfine Structure and Nuclear Moments of ^{99}Ru and ^{101}Ru .
Ru I: Hfs
4046. Carroll, P. K.; Kennedy, E. T.; Phys. Rev. Lett. **38**(19), 1068–1071 (1977).
Doubly Excited Autoionization Resonances in the Absorption Spectrum of Li^+ Formed in a Laser Produced Plasma.
Li II: CL W
4047. Chaghtai, M. S. Z.; Rahimullah, K.; Khatoon, S.; Phys. Scr. **14**(6), 281–284 (1976).
The Transitions $4p-5s$ in Y VI, Zr VII, Nb VIII and Mo IX.
Y VI, Zr VII, Nb VIII, Mo IX: EL CL
4048. Connerade, J. P.; Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **356**, 135–147 (1977).
Molecular Damping of Centrifugal Barrier Effects in the 3d Absorption Spectrum of Selenium Vapour.
Se I: W
4049. Connerade, J. P.; Proc. R. Soc. London, Ser. A **354**, 511–527 (1977).
Inter-Subshell Correlations and Simultaneous Ejection of Two Photoelectrons in the Absorption of Ga I.
Ga I: EL CL ND W
4050. Couturaud, J. C.; Opt. Commun. **22**(1), 71–74 (1977).
Spectroscopic Study of Laser Created Aluminum Plasma.
Al XI–XIII: CL W
4051. Dakhlil, M.; Kielkopf, J. F.; J. Opt. Soc. Am. **67**(6), 844–845 (1977).
Observation of Collision-Induced 6s–ns Transitions in the Absorption Spectrum of Cesium in the Presence of Xenon.
Cs I: EL CL W
4052. Duke, C.; Fischer, H.; Kluge, H. J.; Kremmling, H.; Kuhl, T.; Otten, E. W.; Phys. Lett. A **60**(4), 303–306 (1977).
Determination of the Isotope Shift of ^{199}Hg by On-Line Laser Spectroscopy.
Hg I: IS
4053. Duong, H. T.; Pinard, J.; Vialle, J. L.; Opt. Commun. **22**(1), 79–82 (1977).
Detection par photoionisation des niveaux de Rydberg nF dans le sodium.
Na I: EL
4054. Dynefors, B. I.; Martinson, I.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 223–230 (Plenum Press, New York, 1976).
Beam-Foil Study of S III – S VI.
S III–VIII: EL CL W
4055. Economou, N. P.; Lipson, S. J.; Larson, D. J.; Phys. Rev. Lett. **38**(24), 1394–1396 (1977).
Measurement of a Diamagnetic Shift in Atomic Hyperfine Structure.
Rb I: ZE
4056. El Sherbini, T. M.; Farrag, A. A.; J. Phys. B **9**, 2797–2803 (1976).
Configuration Interaction in the Spectrum of Kr II.
Kr II: PT
4057. Ewart, P.; Phys. Lett. A **61**(6), 383–384 (1977).
Pressure Shifts of $^1\text{D}_2$ Rydberg States of Mg I.
Mg I: EL CL
4058. Farley, J.; Gupta, R.; Phys. Rev. A **15**(5), 1952–1957 (1977).
Fine-Structure Measurements in the 6^2F and 7^2F States of Rubidium by Radio-Frequency Spectroscopy.
Rb I: EL
4059. Feldman, U.; Doschek, G. A.; Rosenberg, F. D.; Astrophys. J. **215**, 652–665 (1977).
XUV Spectra of the 1973 June 15 Solar Flare Observed from Skylab. II. Intersystem and Forbidden Transitions in Transition Zone and Coronal Ions.
Fe XII, XXI, C I: W
4060. Gagne, J. M.; Saint-Dizier, J. P.; Pianarosa, P.; Opt. Commun. **20**(2), 269–270 (1977).
Odd-Even Staggering of ^{235}U from the 5027 Å Line in U I.
U I: IS
4061. Gallagher, T. F.; Humphrey, L. M.; Hill, R. M.; Cooke, W. E.; Edelman, S. A.; Phys. Rev. A **15**(5), 1937–1944 (1977).
Fine-Structure Intervals and Polarizabilities of Highly

3. Bibliography Ordered by Reference Numbers—Continued

- Excited p and d States of Sodium.
Na I: EL
4062. Gallagher, T. F.; Cooke, W. E.; Edelman, S. A.; Hill, R. M.; *Phys. Rev. A* **16**(1), 273–276 (1977).
Fine-Structure Intervals of f States Highly Excited Na.
Na I: Hfs
4063. Gerhardt, H.; Timmermann, A.; *Opt. Commun.* **21**(3), 343–346 (1977).
High Resolution Dye Laser Spectrometer for Measurements of Isotope and Isomer Shifts and Hyperfine Structure.
Kr I: IS
Na I: Hfs
4064. Gough, W.; Griffiths, S. B.; *J. Phys. B* **10**(5), 817–824 (1977).
Sign and Magnitude of the Hyperfine-Structure Interaction Constant, and Mean Lifetime of the $6s^26d\ ^2D_{3/2}$ State of Thallium I.
Tl I: Hfs
4065. Gould, H.; Marrus, R.; *Int. Conf. Beam-Foil Spectrosc.*, 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 305–316 (Plenum Press, New York, 1976).
Radiative Decay and Fine Structure of the 2^3P_0 and the 2^3S_1 States of Helium-Like Krypton (Kr XXXV).
Kr XXXV: EL CL
4066. Groeneveld, K. O.; Nolte, G.; Schumann, S.; *J. Phys. (Paris)*, Lett. **37**, L7–L8 (1976).
Low-Energy Metastable Autoionizing States in Nitrogen, Oxygen, and Neon.
N IV, O V, Ne VII: EL
4067. Grynberg, G.; Biraben, F.; Giacobino, E.; Cagnac, B.; *Opt. Commun.* **18**(3), 374–376 (1976).
Isotropic and Quadrupolar Components of Doppler-Free Two-Photon Transition in Ne.
Ne I: Hfs
4068. Hallstadius, L.; Hansen, J. E.; *Phys. Lett. A* **62**(1), 29–30 (1977).
Measurements of Isotope Shifts in Mg I.
Mg I: IS
4069. Harvey, K. C.; Stoicheff, B. P.; *Phys. Rev. Lett.* **38**(10), 537–540 (1977).
Fine Structure of the n^2D Series in Rubidium Near the Ionization Limit.
Rb I: EL
4070. Heddle, D. W. O.; *Contemp. Phys.* **17**(5), 443–460 (1976).
Resonances in Optical Excitation Functions.
He⁺: EL
4071. Ho, Y. K.; *J. Phys. B* **10**(10), L373–L377 (1977).
Autoionisation States of H⁺ Below the N = 3 Hydrogenic Threshold.
H⁺: PT
4072. Jaffe, C.; Reinhardt, W. P.; *J. Chem. Phys.* **66**(3), 1285–1289 (1977).
Semiclassical Theory of Quantum Defects: Alkali Rydberg States.
Li I, Na I, K I: SF
4073. Jankowski, K.; Malinowski, P.; Polasik, M.; *J. Phys. B* **10**(7), 1231–1239 (1977).
Convergence Patterns of the Configuration-Interaction Expansion for Excited 2^1S and 3^1S States of the Helium Atom.
He I: AT
4074. Kancerevicius, A.; Ramonas, A.; Uspalis, K.; *Liet. Fiz. Rinkiny* **16**(5), 653–665 (1976).
On the Semiempirical Investigation of the Spectra of Co VII and Ni VIII.
Co VII, Ni VIII: TE
4075. Khan, M. A.; Jacoby, D.; Pert, G. J.; *Opt. Commun.* **20**(1), 89–93 (1977).
Spectra of Zn XIX and Zn XX in the 20–50 Å Region.
Zn XIX, XX: CL
4076. Klein, M. B.; Silfvast, W. T.; *Appl. Phys. Lett.* **18**(11), 482–485 (1971).
New cw Laser Transitions in Se II.
Se II: EL CL W
4077. Kononov, E. Ya.; Ryabtsev, A. N.; Safronova, U. I.; Churilov, S. S.; *J. Phys. B* **9**(16), L477–L479 (1976).
Laboratory Observation of Intercombination Lines in Oxygen-Like Ions from Fe to Zn.
Fe XIX, Ni XXI, Cu XXII, Zn XXIII: CL
4078. Lewis, M. L.; Serafino, P. H.; Hughes, V. W.; *Phys. Lett. A* **58**(2), 125–129 (1976).
The Fine Structure Constant from Helium Fine Structure.
He I: EL
4079. Lundberg, H.; Martensson, A. M.; Svanberg, S.; *J. Phys. B* **10**(10), 1971–1978 (1977).
Hyperfine Structure in the Sequence of Sodium S States.
Na I: Hfs
4080. McIlrath, T. J.; Lucatorto, T. B.; *Phys. Rev. Lett.* **38**(24), 1390–1393 (1977).
Laser Excitation and Ionization in a Dense Li Vapor: Observation of the Even-Parity, Core-Excited Autoionizing States.
Li I: EL CL W
4081. Moore, C. E.; Brown, C. M.; Sandlin, G. D.; Tilford, S. G.; Tousey, R.; *Astrophys. J., Suppl. Ser.* **33**(3), 393–415 (1977).
The Presence of Si I Series in the Ultraviolet Solar Spectrum 3000 to 1200 Å.
Si I: W
4082. Mount, G. H.; Yamasaki, G.; Fowler, W.; Fastie, W. G.; *Appl. Opt.* **16**, 591–595 (1977).
Compact Far Ultraviolet Emission Source with Rich Spectral Emission 1150–3100 Å.
Pt I, II: W
4083. Mowat, J. R.; Jones, K. W.; Johnson, B. M.; *Phys. Rev. A* **14**(3), 1109–1113 (1976).
Excitation Energy of the $(1s2s2p)^4P_{5/2}^o$ State in Lithiumlike Aluminum.
Al XI: EL CL
4084. Palenius, H. P.; Risberg, G.; *J. Phys. B* **10**(12), L435–L437 (1977).
Comments on the Atomic Spectrum of Calcium, Ca I.
Ca I: EL CL W
4085. Peacock, N. J.; *Int. Conf. Beam-Foil Spectrosc.*, 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 2, I. A. Sellin and D. J. Pegg, Editors, pp. 925–950 (Plenum Press, New York, 1976).
Spectroscopy of Highly-Striped Ions in Laser-Induced Plasmas.
Se XXIII–XXV: W
4086. Pegg, D. J.; Forester, J. P.; Elston, S. B.; Griffin, P. M.; Groeneveld, K. O.; Peterson, R. S.; Thoe, R. S.; Vane, C. R.; Sellin, I. A.; *Astrophys. J.* **214**, 331–333

3. Bibliography Ordered by Reference Numbers—Continued

- (1977).
The Splitting and Oscillator Strengths for the $2s^2S\ 2p^2P_0$ Doublet in Lithium-Like Sulfur.
S XIV: EL
4087. Rahimullah, K.; Chaghtai, M. S. Z.; Khatoon, S.; Phys. Scr. **14**(5), 221–223 (1976).
4p–5s Transitions in Y VII, VIII, Zr VIII, IX, Nb IX, X and Mo X, XI.
Y VII, VIII, Zr VIII, IX, Nb IX, X: EL CL
Mo X, XI: EL CL
4088. Reader, J.; Acquista, N.; Phys. Rev. Lett. **39**(4), 184–187 (1977).
4s–4p Resonance Transitions in Highly Charged Cu- and Zn-Like Ions.
Rb VIII, IX, Sr IX, X, Y X, XI: CL W
Zr XI, Nb XII, Mo XIII, XIV: CL W
4089. Silfvast, W. T.; Klein, M. B.; Appl. Phys. Lett. **20**(12), 501–504 (1972).
cw Laser Action on 31 Transitions in Tellurium Vapor.
Te II: EL CL W
4090. Silfvast, W. T.; Klein, M. B.; Appl. Phys. Lett. **17**(9), 400–403 (1970).
cw Laser Action on 24 Visible Wavelengths in Se II.
Se II: CL W
4091. Sims, J. S.; Hagstrom, S. A.; Rumble, J. R., Jr.; Int. J. Quantum Chem. **10**(5), 853–866 (1976).
Combined CI–HY Studies of Atomic States. IV. The Four Lowest 1S and Four Lowest 1P States of He and the Lowest 1S and 1P States of H $^-$.
H $^-$, He I: AT
4092. Solarz, R. W.; Paisner, J. A.; Carlson, L. R.; Johnson, S. A.; Worden, E. F.; May, C. A.; Opt. Commun. **18**(1), 29–31 (1976).
Observation and Study of High Lying Rydberg and Valence States in Atomic Uranium by Multistep Photoionization.
U I: EL
4093. Subtil, J. L.; Ceyzeriat, P.; Desesquelles, J.; Druetta, M.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 2, I. A. Sellin and D. J. Pegg, Editors, pp. 791–798 (Plenum Press, New York, 1976).
Hyperfine-Structure Measurements in Carbon-13.
C II, III: Hfs
4094. Subtil, J. L.; Poulsen, O.; Ramanujam, P. S.; Iversen, D. B.; J. Phys. B **10**(9), 1607–1612 (1977).
High-Energy Hyperfine-Structure Measurements in ^{13}C V.
C V: Hfs AT
4095. Sugar, J.; J. Opt. Soc. Am. **65**(11), 1366–1367 (1975).
Ionization Energies of Quadruply Ionized Rare Earths.
Pr V – Ta V: IP
4096. van Piggelen, H. U.; Physica (Utrecht) **90C**, 297–302 (1977).
The Spectrum of Pm^{3+} : Comparison of Experimental Data and Hartree-Fock Results.
Pm IV: AT
4097. Wendlandt, D.; Bauche, J.; Luc, P.; J. Phys. B **10**(10), 1989–2002 (1977).
Hyperfine Structure in Tc I; Experiment and Theory.
Tc I: Hfs AT
4098. Zundell, B. E.; Hughes, V. W.; Phys. Lett. A **59**(5), 381–382 (1976).
Precise Measurement of Electronic g , Value of Helium,
- $g(^4\text{He}, 2^3S_1)$.
He I: ZE
4099. Joshi, Y. N.; van Kleef, T. A. M.; Can. J. Phys. **55**(7–8), 714–726 (1977).
 $4d^9 \rightarrow 4d^8 5p$ Transitions in Cd IV, Sn VI, and Sb VII and the Resonance Lines of Sn V and Sb VI.
Cd IV, Sn V, VI: EL ND CL PT
Sb VI, VII: EL ND CL PT
4100. Connerade, J. P.; Garton, W. R. S.; Mansfield, M. W. D.; Martin, M. A. P.; Proc. R. Soc. London, Ser. A **357**, 499–512 (1977).
Interchannel Interactions and Series Quenching in the 5d and 6s Spectra of Pb I.
Pb I: EL ND CL IP
4101. Ahlenius, T.; Crossley, R.; Larsson, S.; Phys. Lett. A **63**(3), 270–272 (1977).
On the Doubly-Excited $^4P^o$ Terms of Li I.
Li I: EL CL
4102. Bruch, R.; Rodbro, M.; Bisgaard, P.; Dahl, P.; Phys. Rev. Lett. **39**(13), 801–804 (1977).
Time-Delayed Li, Be, and B, Autoionization Spectra Excited in Low-Energy (200 keV) Single Gas Collisions.
Li I, Be I, II, B II, III: EL
4103. Beck, D. R.; Nicolaides, C. A.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 105–109 (Plenum Press, New York, 1976).
Anomalies in the Fine and Hyperfine Structure of Alkali Isoelectronic Sequences.
Li I, Be II, B III, C IV, N IV: Hfs
4104. Brown, C. M.; Tilford, S. G.; Ginter, M. L.; J. Opt. Soc. Am. **67**(9), 1240–1252 (1977).
Absorption Spectrum of Pb I Between 1350 and 2041 Å.
Pb I: EL ND CL IP
4105. Brown, C. M.; Ginter, M. L.; J. Opt. Soc. Am. **67**(10), 1323–1327 (1977).
Absorption Spectrum of Ag I Between 1540 and 1850 Å.
Ag I: EL ND CL IP
4106. Beck, D. R.; Nicolaides, C. A.; Phys. Lett. A **61**(4), 227–229 (1977).
High Spin and Mixed States in B I and B II.
B II: W
4107. Brechignac, C.; J. Phys. B **10**(11), 2105–2110 (1977).
Measurements of Isotope Shift in Visible Lines of Kr I by Saturated-Absorption Techniques.
Kr I: IS
4108. Bernabeu, E.; Peralta, F. G.; Alvarez, J. M.; J. Opt. Soc. Am. **67**(1), 24–27 (1977).
Pressure Effects of Helium, Neon, and Argon on the Hyperfine Structure of the First Doublet of Cesium.
Cs I: Hfs
4109. Burkhalter, P. G.; Reader, J.; Cowan, R. D.; J. Opt. Soc. Am. **67**(11), 1521–1525 (1977).
Spectra of Mo XXX, XXXI, and XXXII from a Laser Produced Plasma.
Mo XXX–XXXII: EL ND CL
4110. Boiko, V. A.; Faenov, A. Ya.; Pikuz, S. A.; Skobelev, I. Yu.; Vinogradov, A. V.; Yukov, E. A.; J. Phys. B **10**(17), 3387–3394 (1977).
The Observation of Intercombination Lines $1s3p\ ^3P_1 \rightarrow 1s^2\ ^1S_0$ of Multicharged He-Like Ions in Laser-Produced Plasmas.

3. Bibliography Ordered by Reference Numbers—Continued

- Mg XI, Al XII, P XIV: EL CL
S XV, Cl XVI: EL CL
4111. Buchet, J. P.; Buchet-Poulizac, M. C.; Phys. Lett. A **63**(3), 267-269 (1977).
Beam-Foil Spectroscopy of Al V-VII Between 85 and 135 Å.
Al V-VII: CL
4112. Adam, M. Y.; Wulleumier, F.; Sandner, N.; Schmidt, V.; Wendin, G.; J. Phys. (Paris) **39**, 129-135 (1978).
Satellite Lines in the 5s-5p Photoelectron Spectrum of Xenon.
Xe II: EL
4113. Bogdanovich, P.; Sadziuviene, S.; Boruta, I. I.; Rudzikas, Z.; Liet. Fiz. Rinkiny **16**(4), 505-512 (1976).
Theoretical Investigation of the Energy Spectra of the Oxygen Isoelectronic Sequences Taking Into Account Relativistic Corrections.
O I, Mg V, Zn XXIII: AT
4114. Boklen, K. D.; Foerster, W.; Fuchs, H. H.; Nachtsheim, G.; Nitschke, W.; Z. Phys. A **282**, 249-251 (1977).
ABMR-Ramsey Patterns of Strongly Field Dependent Transitions of Lithium at High Magnetic Field.
Li I: ZE
4115. Bonnelle, C.; Karnatak, R. C.; Spector, N.; J. Phys. B **10**(5), 795-801 (1977).
Photoabsorption in the Vicinity of 3d Edges of Eu and Gd.
Eu III, Gd IV: EL CL PT
4116. Childs, W. J.; Goodman, L. S.; J. Opt. Soc. Am. **67**(9), 1230-1234 (1977).
Complete Resolution of Hyperfine Structure in the Close Doublet $\lambda 5930.6$ of ^{139}La by Laser-Atomic Beam Spectroscopy.
La I: Hfs
4117. Chu, S.; Lawrence Berkeley Lab., LBL-5731, 114 pp. (1976).
Observation of the Forbidden Magnetic Dipole Transition $6^2P_{1/2} \rightarrow 7^2P_{1/2}$ in Atomic Thallium.
Tl I: EL PT
4118. Connerade, J. P.; Martin, M. A. P.; Proc. R. Soc. London, Ser. A **357**, 103-115 (1977).
On the Outermost d-Subshell Absorption Spectra of Ge I and Sn I.
Sn I, Ge I: EL ND CL
4119. Fabre, C.; Goy, P.; Haroche, S.; J. Phys. B **10**(6), L183-L189 (1977).
Millimetre Resonances in Na Rydberg Levels Detected by Field Ionization: Quantum Defects and Stark Effect Studies.
Na I: EL SE
4120. Feldmann, D.; Rackwitz, R.; Heinicke, E.; Kaiser, H. J.; Z. Naturforsch., Teil A **32**, 302-306 (1977).
Photoablosung von Elektronen der Ionen B^+ , Ga^+ , In^+ , Tl^+ , Ge^+ , Sn^+ und Pb^+ .
 Ga^+ , In^+ , Tl^+ , Ge^+ , Sn^+ , Pb^+ : EL
4121. Feldmann, D.; Rackwitz, R.; Heinicke, E.; Kaiser, H. J.; Z. Phys. A **282**, 143-148 (1977).
Photodetachment of Some Atomic Negative Ions: P^- , As^- , Sb^- , Bi^- , Te^- , Cr^- , Ni^- .
 P^- , As^- , Sb^- , Bi^- , Te^- , Cr^- , Ni^- : EL
4122. Fredriksson, K.; Lundberg, H.; Svanberg, S.; Z. Phys. A **283**, 227-230 (1977).
Measurement of the Fine-Structure Splitting of the 4^2D State of Lithium using Level-Crossing Spectroscopy.
Li I: EL
4123. Flusberg, A.; Mossberg, T.; Hartmann, S. R.; Phys. Lett. A **58**(6), 373-374 (1976).
Observation of Dicke Superradiance at 1.30 μm in Atomic Tl Vapor.
Tl I: CL
4124. George, S.; Fredrickson, J. E.; Tucker, A. W.; Sci. Light (Tokyo) **26**(1), 53-60 (1977).
First Spectrum of Selenium in the Region 1897 Å to 9271 Å.
Se I: W
4125. Gebauer, R.; Essl, R.; Acta Phys. Austriaca **47**, 199-227 (1977).
Über den Stark-Effekt der Triplethauptserie des Heliums bei hohen Feldstärken.
He I: CL SE
4126. Grundevik, P.; Gustavsson, M.; Rosen, A.; Svanberg, S.; Z. Phys. A **283**, 127-132 (1977).
High Resolution Laser Fluorescence Spectroscopy in the Deep Blue Spectral Region.
Rb I, Yb I: IS
4127. Gustavsson, M.; Lindgren, I.; Olsson, G.; Rosen, A.; Svanberg, S.; Phys. Lett. A **62**(4), 250-252 (1977).
Hyperfine Structure of Metastable States of Barium Studied by Atomic-Beam Magnetic-Resonance with Laser Detection.
Ba I: Hfs
4128. Henley, E. M.; Klapisch, M.; Wilets, L.; Phys. Rev. Lett. **39**(16), 994-997 (1977).
Electron Configuration Mixing and Parity Nonconservation in Atomic Bi.
Bi I: AT
4129. Heddle, D. W. O.; Proc. R. Soc. London, Ser. A **352**, 441-449 (1977).
High Resolution Studies of Electron Excitation VI. Resonance Series in Helium.
He $^-$: EL
4130. Hermann, G.; Lasnitschka, G.; Scharmann, A.; Z. Phys. A **282**, 253-259 (1977).
High Resolution Zeeman Spectroscopy on the Neon Levels $2s_2$ and $2p_4$ by Mode Crossing at High Magnetic Fields.
Ne I: ZE
4131. Isler, R. C.; Neidigh, R. V.; Cowan, R. D.; Phys. Lett. A **63**(3), 295-297 (1977).
Tungsten Radiation from Tokamak-Produced Plasmas.
W XXXI-XXXV: TA
4132. Lee, S. T.; Suzer, S.; Matthias, E.; Rosenberg, R. A.; Shirley, D. A.; J. Chem. Phys. **66**(6), 2496-2505 (1977).
Configuration Interaction Effects in the Atomic Photoelectron Spectra of Ba, Sm, Eu, and Yb.
Ba I, Eu I, Sm I, Yb I: EL
4133. Aufmuth, P.; Clieves, H. P.; Heilig, K.; Steudel, A.; Wendlandt, D.; Bauche, J.; Z. Phys. A **285**, 357-364 (1978).
Isotope Shift in Molybdenum.
Mo I, II: IS AT
4134. Magnusson, C. E.; Zetterberg, P. O.; Phys. Scr. **15**(4), 237-250 (1977).
The Spectrum of Doubly Ionized Phosphorus, P III.
P III: EL ND CL IP
4135. Borgstrom, S. A.; Rubbmark, J. R.; J. Phys. B **10**(18), 3607-3615 (1977).
Stark Mixing of High-Lying Calcium Levels by

3. Bibliography Ordered by Reference Numbers—Continued

- Laser-Produced Charges.
Ca I: EL CL SE
4136. Mikhailov, Yu. A.; Pikuz, S. A.; Sklizkov, G. V.; Faenov, A. Ya.; Fedotov, S. I.; Opt. Spectrosc. (USSR) **42**(5), 469–471 (1977).
Observation of Ti XXI – Fe XXV Spectra in X-Ray Emission of a Laser Plasma.
Ti XXI, V XXII, Cr XXIII, Fe XXV: W
4137. Nubbmeyer, H.; Wende, B.; Phys. Rev. A **16**(2), 627–632 (1977).
Experimental Stark Widths and Shifts of uv and vuv Carbon I Lines (Resonance Transitions $2p3s\ ^3P_{0,1,2}^o - 2p^2\ ^3P_{0,1,2}$ and Transitions to Low Lying Quantum States).
C I: SE
4138. Odintsova, N. K.; Striganov, A. R.; Opt. Spectrosc. **41**(6), 545–547 (1976).
Isotope Shift and Deformation of Gadolinium Nuclei.
Gd I: IS
4139. Safronova, U. I.; Senashenko, V. S.; Opt. Spectrosc. (USSR) **42**(5), 462–464 (1977).
Autoionizing States of Lithium Atoms.
Li I: AT
4140. Stolterfoht, N.; Schneider, D.; Mann, R.; Folkmann, F.; J. Phys. B **10**(8), L281–L285 (1977).
Auger Emission from Highly Ionised Neon Produced in 200 MeV Xe³¹⁺ + Ne Collisions.
Ne VIII: EL
4141. Subtil, J. L.; J. Phys. B **10**(11), 2041–2048 (1977).
Hyperfine Structure of the $1s^2 2s 3p\ ^3P^o$ State in ¹³C III.
C III: Hfs
4142. Suemitsu, H.; Matsuura, Y.; Nako, F.; Fukuda, K.; Mem. Fac. Eng., Kyoto Univ. **38**(4), 255–269 (1976).
Emission from C-, N- and O-Impurity Ions in Linear Pinch He Plasma in Vacuum Ultraviolet $\lambda 500$ to $1,500\ \text{\AA}$ Region.
C II, III, N II–IV, O II, V: CL
4143. Vienne-Casalta, D.; Lahaye, B.; J. Phys. (Paris) **38**, 1207–1212 (1977).
Mesure du facteur de lande du niveau metastable $6\ ^3P_0$ des isotopes impairs du mercure.
Hg I: ZE
4144. Zetterberg, P. O.; Magnusson, C. E.; Phys. Scr. **15**(3), 189–201 (1977).
The Spectrum and Term System of P IV.
P IV: EL ND CL
4145. Bauche-Arnoult, C.; Bauche, J.; Klapisch, M.; J. Opt. Soc. Am. **68**(8), 1136–1139 (1978).
Mean Wavelength and Spectral Width of Transition Arrays in X–UV Atomic Spectra.
Mo XVI–XIX: AT
4146. Boiko, V. A.; Ivanova, T. G.; Pikuz, S. A.; Faenov, A. Ya.; Kratk. Soobshch. Fiz. **10**, 26–28 (1976).
Identification of Transitions in Ta XLVI and Ta XLVII Observed in Laser Plasma.
Ta XLVI, XLVII: CL W
4147. Andrews, D. A.; Newton, G.; J. Phys. B **10**(12), 2333–2337 (1977).
Proposed Method for an Improved Measurement of the (n=2) Lamb Shift in Atomic Hydrogen.
H I: QF
4148. Brandt, H. W.; Camus, P.; Z. Phys. A **283**, 309–313 (1977).
Recent Hyperfine Structure Investigations in the Configurations $4f^{13}6s^2$, $4f^{13}6s6p$, and $4f^{12}5d6s^2$ of Tm I.
- Tm I: Hfs
4149. Buttgenbach, S.; Dicke, R.; Gebauer, H.; Phys. Lett. A **62**(5), 307–309 (1977).
Hyperfine Structure of the $5d^2 6s^2\ ^3F_{3,4}$ Metastable Atomic Levels of ¹⁷⁹Hf and the Nuclear Quadrupole Moments of ¹⁷⁷Hf and ¹⁷⁹Hf.
Hf I: Hfs
4150. Bauche-Arnoult, C.; Sinzelle, J.; Bachelier, A.; J. Opt. Soc. Am. **68**(3), 368–374 (1978).
Extensive Theoretical Analysis of the f'd and f^{dd} Configurations. Application to $4f^6 5d 6s^2$ in Tb I.
Tb I: PT
4151. Clark, D. L.; Cage, M. E.; Greenlees, G. W.; Phys. Lett. A **62**(6), 439–442 (1977).
The Hyperfine Structure and Hyperfine Anomaly of ¹⁶¹Dy and ¹⁶³Dy.
Dy I: Hfs
4152. Connerade, J. P.; J. Phys. B **10**(7), L239–L242 (1977).
On Double Photoionisation.
Ga I: IP
4153. Connerade, J. P.; Tracy, D. H.; J. Phys. B **10**(7), L235–L238 (1977).
On "Collective Excitation" in the 5p Spectra of Barium and the Lanthanides.
Sm I: W
4154. Delage, A.; Roy, D.; Carette, J. D.; J. Phys. B **10**(8), 1487–1496 (1977).
Electroexcitation of Xe I Energy Levels in the 18–24 eV Autoionization Region.
Xe I: EL
4155. Eibofner, A.; Phys. Lett. A **61**(3), 159–161 (1977).
Detection of the $6D_{5/2} - 6S_{1/2}$ Double Quantum Transition in Ionized Helium.
He II: EL
4156. Erkoc, S.; Uzer, T.; Oksuz, I.; Phys. Rev. A **15**(4), 1805–1806 (1977).
S Autoionizing States of He.
He I: TE
4157. Esherick, P.; Wynne, J. J.; Comments At. Mol. Phys. **7**(1–2), 43–52 (1977).
High Rydberg States in Alkaline Earth Atoms—I: Multiphoton Spectroscopy.
Ca I: SF
4158. Gerasimov, G. N.; Petrov, S. Ya.; Sabirova, I. L.; Opt. Spectrosc. (USSR) **42**(6), 596–597 (1977).
Spectrum of Argon Afterglow in the 450–850-nm Region.
Ar I: W
4159. Gerhardt, H.; Wenz, R.; Matthias, E.; Phys. Lett. A **61**(6), 377–379 (1977).
Isotope Shifts of the 557 nm Transition in Even Krypton Isotopes.
Kr I: IS
4160. Gerstenkorn, S.; Labarthe, J. J.; Verges, J.; Phys. Scr. **15**(3), 167–172 (1977).
Fine and Hyperfine Structures and Isotope Shifts in the Arc Spectrum of Mercury.
Hg I: EL CL W Hfs IS
4161. Gerstenkorn, S.; Labarthe, J. J.; Verges, J.; Phys. Scr. **15**(3), 173–176 (1977).
Fine and Hyperfine Structures and Isotope Shifts in the Arc Spectrum of Mercury.
Hg I: Hfs IS PT

3. Bibliography Ordered by Reference Numbers—Continued

4162. Grycuk, T.; Chem. Phys. Lett. **50**(2), 309–314 (1977).
Some Remarks on the Interpretation of Satellites of the
Mercury 2537 Å Line in the Presence of Noble Gases.
Hg I: W
4163. Hansen, J. E.; Persson, W.; J. Phys. B **10**(10), L363–L367
(1977).
Strong Configuration Interaction Between 4d5p ¹F and the
5snf ¹F Series in Sr I.
Sr I: AT
4164. King, W. H.; J. Phys. B **10**(17), 3381–3385 (1977).
The Sixth Spectrum of Manganese (Mn VI).
Mn VI: EL ND CL
4165. Klotz, W. D.; Becker, U.; Goebel, L. H.; Z. Phys. A **283**,
139–143 (1977).
Hyperfine Structure Investigations of Some Odd Levels of
Co I by Level Crossing and Optical Methods.
Co I: Hfs
4166. Kupliauskis, Z. I.; Kupliauskiene, A. V.; Sov. Phys. J.
20(6), 753–756 (1977).
Studying Li and He⁺ in the 1s2s2p Configuration.
He⁺, Li I: PT
4167. Kovalev, V. I.; Ramonas, A. A.; Ryabtsev, A. N.; Opt.
Spectrosc. (USSR) **43**(1), 4–7 (1977).
3d³–3d²4p Transition in the Spectrum of Mn V.
Mn V: EL ND CL W PT
4168. Lindgren, B.; Palenius, H. P.; Sol. Phys. **53**, 347–352
(1977).
New Measurements of the Se I Resonance Lines.
Se I: CL W
4169. Mansfield, M. W. D.; Newsom, G. H.; Proc. R. Soc. London,
Ser. A **357**, 77–102 (1977).
The Ca I Absorption Spectrum in the Vacuum Ultraviolet:
Excitation of the 3p–Subshell.
Ca I: EL CL W
4170. Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **358**,
253–265 (1977).
Excitation of the 3p–Subshell in Chromium Vapour.
Cr I: EL ND CL W PT
4171. Jackson, D. A.; J. Opt. Soc. Am. **67**(12), 1638–1640
(1978).
Hyperfine Structure in the Arc Spectrum of ⁸³Kr.
Kr I: IS
4172. Nicolosi, P.; Tondello, G.; J. Opt. Soc. Am. **67**(8),
1033–1039 (1977).
Satellite Spectra from Laser–Produced Plasmas of Be, B,
C, N, and O in He–Like and Li–Like Configurations.
Be II, III, B III, IV, C IV, V: EL CL W
N V, VI, O VI, VII: EL CL W
4173. Pegg, D. J.; Griffin, P. M.; Johnson, B. M.; Jones, K.
W.; Cecchi, J. L.; Kruse, T. H.; Phys. Rev. Lett.
38(25), 1471–1473 (1977).
Intensity Modulations in the Decay of the 3²P_{1/2}^o Level
in the Sodiumlike Ion, Cu¹⁸⁺.
Cu XIX: Hfs
4174. Becker, U.; Goebel, L. H.; Klotz, W. D.; Physica
(Utrecht) **93C**, 271–278 (1978).
Hyperfine Structure of the 3d³4p ³D₂ Level of ⁶¹Ni.
Ni I: Hfs
4175. Samanta, S. R.; Ali, M. A.; J. Phys. B **10**(11), 2073–2081
(1977).
Perturbation Treatment of 2p3d ^{1,3}L^o Doubly Excited
States of the Helium Sequence.
- He I, Li II: AT
4176. Schwob, J. L.; Klapisch, M.; Schweitzer, N.; Finkenthal,
M.; Breton, C.; De Michelis, C.; Mattioli, M.; Phys.
Lett. A **62**(2), 85–89 (1977).
Identification of Mo XV to Mo XXXIII in the Soft X–Ray
Spectrum of the TFR Tokamak.
Mo XV–XXXIII: CL
4177. Spence, D.; Phys. Rev. A **15**(3), 883–887 (1977).
New Aid to the Classification Feshbach Resonances.
Application to Ne, Kr, Ar, and Xe.
Ne I, Kr I, Ar I, Xe I: EL
4178. Sugar, J.; J. Opt. Soc. Am. **67**(11), 1518–1521 (1977).
Resonance Lines in the Ag I and Pd I Isoelectronic
Sequences: Cs IX through Sm XVI and Cs X through Nd XV.
Cs IX, X, Ba X, XI, La XI, XII: EL ND CL
Ce XII, XIII, Pr XIII, XIV: EL ND CL
Nd XIV, XV, Sm XVI: EL ND CL
- 4179A. Tsai, C. J.; Diss. Abstr. Int. B **37**(9), 4525 (1977).
The Measurement of g_f(²³Na⁺)/g_f(²³Na) by Optical Pumping.
Na I: ZE
4180. Bauche, J.; Champeau, R. J.; Sallot, C.; J. Phys. B
10(11), 2049–2059 (1977).
J–Dependent Isotope Shifts in the Ground Term of
Samarium I.
Sm I: IS
4181. Damburg, R. J.; Kolosov, V. V.; Phys. Lett. A **61**(4),
233–234 (1977).
Highly Excited Atomic States in a Static Electric Field.
H I: SE
4182. Fehrenbach, C.; Astron. Astrophys., Suppl. Ser. **29**, 71–77
(1977).
Les longueurs d'onde des raies interdites dans le spectre
de la nebuleuse d'orion.
Fe II, III, Ni II, S II: W
4183. Giacobino, E.; Biraben, F.; Grynberg, G.; Cagnac, B.; J.
Phys. (Paris) **38**, 623–628 (1977).
Doppler–Free Two–Photon Spectroscopy of Neon I. Fine
Structure and Hyperfine Constants for the 4d'
Subconfiguration.
Ne I: EL Hfs
4184. Grynberg, G.; Biraben, F.; Giacobino, E.; Cagnac, B.; J.
Phys. (Paris) **38**, 629–640 (1977).
Doppler–Free Two–Photon Spectroscopy of Neon. II. Line
Intensities.
Ne I: Hfs
4185. Kononov, E. Ya.; Kovalev, V. I.; Ryabtsev, A. N.;
Churilov, S. S.; Sov. J. Quantum Electron. **7**(1), 111–112
(1977).
Laser–Plasma Spectra of Ions of Elements from Fe to Br
with 15–24 Lost Electrons, Recorded in the 50–150 Å.
Fe XVI, XIX, Ni XVIII, XXI, Cu XIX: EL CL
Cu XXI–XXIII, Zn XX, XXII–XXIV, Ga XXI: EL CL
Ga XXIII, Ge XXII, XXIV, As XXIII, XXV: EL CL
Br XXIV: EL CL
4186. Kupliauskis, Z. I.; Kupliauskiene, A. V.; Sov. Phys. J.
19(10), 1324–1329 (1977).
The Effect of 2p–Shell Division in Nitrogen–Type Atoms.
C⁺, N I, O II, F III: AT
4187. Blagoev, K. B.; Komarovskii, V. A.; Opt. Spectrosc.
(USSR) **42**(2), 229–230 (1977).
Relative Oscillator Strengths of the Spectral Lines of
Atomic Samarium.

3. Bibliography Ordered by Reference Numbers—Continued

- Sm I: CL
4188. Gerstenkorn, S.; Luc, P.; Perrin, A.; Chauville, J.; Astron. Astrophys. **58**, 255–266 (1977).
Sur la precision des nombres d'ondes mesures par spectroscopie de Fourier dans le visible Etalons secondaires de nombres d'ondes.
U I: CL W
4189. Ben Ahmed, Z.; Verges, J.; Physica (Utrecht) **92C**, 113–121 (1977).
Extension de l'etude du spectre d'arc du scandium. 1. Resultats experimentaux.
Sc I: EL ND CL W ZE
4190. Bromage, G. E.; Cowan, R. D.; Fawcett, B. C.; Phys. Scr. **15**, 177–182 (1977).
Energy Levels and Oscillator Strengths for $3s^23p^n$ $3s^23p^{n-1}3d$ Transitions of Fe X and Fe XI.
Fe X, XI: EL CL PT
4191. Cantu, A. M.; Parkinson, W. H.; Tondello, G.; Tozzi, G. P.; J. Opt. Soc. Am. **67**(8), 1030–1033 (1977).
Observations of Li I and Li II Absorption Spectra in the Grazing Incidence Region.
Li I, II: ND CL W
4192. Cooke, W. E.; Gallagher, T. F.; Hill, R. M.; Edelstein, S. A.; Phys. Rev. A **16**(3), 1141–1145 (1977).
Resonance Measurements of d–f and d–g Intervals in Lithium Rydberg States.
Li I: EL CL
4193. Davis, W. A.; Marrus, R.; Phys. Rev. A **15**(5), 1963–1975 (1977).
Radiative Decay from the 2^3P_2 and 2^3P_0 Levels of Heliumlike Argon.
Ar XVII: W
4194. Eckert, H. J.; Koch, H.; Zimmermann, P.; Z. Naturforsch., Teil A **32**, 708–710 (1977).
Stark Effect Investigations in the $5d6s(^3D)6p^2D_{3/2}$ State of Li I.
Li I: SE
4195. Freeman, G. H. C.; King, W. H.; J. Phys. E **10**, 894–897 (1977).
Cu II Spectral Lines and Their Suitability as Wavelength Standards in the Vacuum Ultraviolet.
Cu II: W
4196. Johansson, S.; Phys. Scr. **15**, 183–188 (1977).
Forbidden Transitions of Fe II.
Fe II: CL W
4197. Kastner, S. O.; Crooker, A. M.; Behring, W. E.; Cohen, L.; Phys. Rev. A **16**(2), 577–582 (1977).
Observation of Autoionizing Transitions $ns^2np^6\text{--}nsnp^6mp$ in Neonlike Mg III and Al IV and Argonlike Ca III, Sc IV, Ti V, V VI, Cr VII, and Fe IX.
Mg III, Al IV, Ca III, Sc IV, Ti V: EL CL
V VI, Cr VII, Fe IX: EL CL
4198. Keiser, G. M.; Robinson, H. G.; Johnson, C. E.; Phys. Rev. A **16**(3), 822–835 (1977).
An Experimental Determination of $g_J(^4He, 2^3S_1)/g_J(^1H, 1^2S_{1/2})$.
He I, Rb I: ZE
4199. Srivastava, R. P.; Joshi, Y. N.; van Kleef, T. A. M.; Can. J. Phys. **55**(21), 1936–1947 (1977).
 $4d^85p \rightarrow 4d^85s$ Transitions in Sn VI.
Sn VI: EL ND CL W PT
4200. Tiedeman, J. S.; Robinson, H. G.; Phys. Rev. Lett. **39**(10), 602–604 (1977).
Determination of $g_J(^1H, 1^2S_{1/2})/g_S(e)$: Test of Mass Independent Corrections.
He I: ZE
4201. van Kleef, T. A. M.; Srivastava, R. P.; Joshi, Y. N.; J. Opt. Soc. Am. **67**(11), 1525–1532 (1977).
 $4d^85s$ and $4d^85p$ Configurations in the Fifth Spectrum of Indium: In V.
In V: EL ND CL W PT
4202. Wyart, J. F.; Camus, P.; Verges, J.; Physica (Utrecht) **92C**, 377–396 (1977).
Etude du spectre de l'holmium atomique. I. Spectre d'emission infrarouge, niveaux d'energie de Ho I et structures hyperfines.
Ho I: EL ND CL W Hfs
4203. Tuilier, M. H.; Lacour, B.; J. Phys. B **10**(8), 1407–1412 (1977).
Soft X-Ray Emission from Picosecond Laser Plasmas.
Al XI, XII: CL
4204. Cardon, B. L.; Thesis, Univ. Arizona, 195 pp. (1977).
The Beam-Foil Spectra of Krypton (2 to 5 MeV).
Kr VII: CL W
Kr VIII–XIII: CL
4205. Davis, W. A.; Thesis, Univ. Calif., 151 pp. (1976).
Ultraviolet Transitions from the 2^3P States of Helium-Like Argon.
Ar XVII: CL
4206. Artru, M. C.; Brillet, W. L.; Phys. Scr. **16**, 93–98 (1977).
Analysis of the $2p^43s$, $2p^43p$ and $2p^43d$ Configurations of Five-Times Ionized Silicon (Si VI).
Si VI: EL CL PT
4207. Bourgey, J.; Denis, A.; Desesquelles, J.; J. Phys. (Paris) **38**, 1229–1236 (1977).
Mesure de l'effet Stark de structure fine de l'hélium hydrogeneide He^+ ($n=4$).
He II: SE QF
4208. Beahn, T. J.; Bedard, F. D.; Phys. Rev. A **16**(6), 2203–2206 (1977).
Measurement of the Ground State g_J Factor of ^{23}Na .
Na I: ZE
4209. Billy, N.; Lhuillier, C.; Faroux, J. P.; J. Phys. (Paris), Lett. **38**, L429–L434 (1977).
Structure fine du niveau $n=4$ de l'ion He^+ .
He II: EL
4210. Brandt, H. W.; Heilig, K.; Knockel, H.; Steudel, A.; Phys. Lett. A **64**(1), 29–30 (1977).
Optical Isotope Shift Measurements of $^{40,42,43,44,46}Ca$ by Use of Enriched Isotopes in an Atomic Beam.
Ca I: IS
4211. Bromage, G. E.; Cowan, R. D.; Fawcett, R. C.; Gordon, H.; Hobby, M. G.; Peacock, N. J.; Ridgeley, A.; U. K. At. Energy Auth., Culham Lab. CLM–R 170, 24 pp. (1977).
The Laser-Produced Spectrum of Fe XVII to Fe XXI Below 18 Å.
Fe XVII–XXI: CL W
4212. Bunge, C. F.; Bunge, A. V.; Phys. Rev. A **17**(3), 816–821 (1978).
Absolute Term Values for the Quartet States of Neutral Lithium.
Li I: AT
4213. Champeau, R. J.; Keller, J. C.; J. Phys. (Paris), Lett.

3. Bibliography Ordered by Reference Numbers—Continued

- 38(23)**, L463–L466 (1977).
Investigation of the Line $\lambda = 587$ nm ($1s_3-2p_2$) of Kr I
Using Stimulated Emission in an Atomic Beam.
Kr I: IS
4214. Clark, B. O.; Van Baak, D. A.; Lundeen, S. R.; Pipkin, F. M.; Phys. Lett. A **64**(2), 172–174 (1977).
Precision Measurement of the Double Quantum Transition $3^2S_{1/2}-3^2D_{5/2}$ in Hydrogen.
H I: EL
4215. Cooke, W. E.; Gallagher, T. F.; Hill, R. M.; Edelstein, S. A.; Phys. Rev. A **16**(6), 2473–2477 (1977).
Measurement of $nd \rightarrow (n+1)p$ Intervals in Sodium Rydberg States.
Na I: EL
4216. Eidelsberg, M.; Artru, M. C.; Phys. Scr. **16**, 109–113 (1977).
Analysis of the P VI Spectrum.
P VI: EL CL PT
4217. Grundevik, P.; Lundberg, H.; Z. Phys. A **285**, 231–233 (1978).
Measurement of the Hyperfine Structure Splitting for the 4 and $5^2P_{1/2}$ States of Sodium Using Radio-Frequency Spectroscopy.
Na I: Hfs
4218. Hannebauer, F.; Thesis, Ruhr-Univ. Bochum, 175 pp. (1977).
Experimentelle und theoretische untersuchungen zum doppelt angeregten quartett-termsystem des ovi-ions.
O V-VIII: ND CL W
4219. Hinnov, E.; Phys. Rev. A **14**(4), 1533–1541 (1976).
Highly Ionized Atoms in Tokamak Discharges.
Fe XXIII, XXIV, Kr XXV, XXVI: CL W
Mo XXXI, XXXII, Xe XXV, XXVI: CL W
4220. Hohle, C.; Huhnermann, H.; Meier, T.; Wagner, H.; Z. Phys. A **284**, 261–265 (1978).
High Resolution Spectroscopy of the Transition $5d\ 2^2D_{3/2} \rightarrow 6p\ 2^2P_{3/2}^*$.
Ba II: Hfs IS
4221. Littman, M. G.; Zimmerman, M. L.; Kleppner, D.; Phys. Rev. Lett. **37**(8), 486–489 (1976).
Tunneling Rates for Excited States of Sodium in a Static Electric Field.
Na I: SE
4222. Lunell, S.; Phys. Scr. **16**, 13–15 (1977).
Doubly-Excited States in Three-Electron Systems.
Li I: ND AT
4223. Peterson, K. L.; Anderson, D. L.; Parsons, M. L.; Phys. Rev. A **17**(1), 270–276 (1978).
Spectral Classification Using Pattern-Recognition Techniques. II. Application to Curium Energy Levels.
Cm I: ND
4224. Siefert, E.; Ann. Phys. (Leipzig) [7] **34**, 286–294 (1977).
Calculation of the Hyperfinestructure and g_J -Values of $3d4s4p$ -Configuration of Scandium.
Sc I: PT
4225. Tagliaferri, A. A.; Lluésma, E. G.; Garavaglia, M.; Gallardo, M.; Massone, C. A.; Comision Invest. Cientificas Provincia Buenos Aires, Informes 19, 28 pp (1975).
Identificacion preliminar de lineas espectrales del Xe IV entre 2700 y 6900 Å.
Xe III, IV: W
4226. Tracy, D. H.; Proc. R. Soc. London, Ser. A **357**, 485–498 (1977).
Photoabsorption Structure in Lanthanides: 5p Subshell Spectra of Sm I, Eu I, Dy I, Ho I, Er I, Tm I, and Yb I.
Yb I: W
Yb II: CL W
4227. Wieman, C.; Hansch, T. W.; Springer Ser. Opt. Sci., J. L. Hall and J. L. Carlsten, Editors, Vol. 7, pp. 41–43 (Springer-Verlag, Berlin, 1977).
Precision Measurement of the Ground State Lamb Shift in Hydrogen and Deuterium.
H I: QF
4228. Wyart, J. F.; Camus, P.; Physica (Utrecht) **93C**, 227–236 (1978).
Etude du spectre de l'holmium atomique. II.
Interpretation parametrique des niveaux d'énergie et des structures hyperfines.
Ho I: PT
4229. Brand, H.; Nottbeck, B.; Schulz, H. H.; Steudel, A.; J. Phys. B **11**(4), L99–L103 (1978).
Laser-Atomic-Beam Spectroscopy in the Samarium I Spectrum.
Sm I: IS Hfs
4230. Bromage, G. E.; Cowan, R. D.; Fawcett, B. C.; Ridgeley, A.; J. Opt. Soc. Am. **68**(1), 48–51 (1978).
Classification of Be I-Like and B I-Like Iron and Vanadium Spectra from Laser-Produced Plasmas.
V XX, Fe XXII, XXIII: EL CL AT PT
4231. Brown, C. M.; Ginter, M. L.; J. Opt. Soc. Am. **68**(2), 243–246 (1978).
Absorption Spectrum of Au I Between 1300 and 1900 Å.
Au I: EL CL W IP
4232. Callaway, J.; Gau, J. N.; Henry, R. J. W.; Oza, D. H.; Lan, V. K.; Le Dourneuf, M.; Phys. Rev. A **16**(6), 2288–2294 (1977).
Excitation of C^{3+} by Electron Impact.
C IV: AT
4233. Champeau, R. J.; Keller, J. C.; J. Phys. B **11**(3), 391–397 (1978).
Spectroscopie laser a tres haute resolution sur un jet atomique de krypton.
Kr I: Hfs IS
4234. Curtis, L. J.; Lindgard, A.; Edlen, B.; Martinson, I.; Nielson, S. E.; Phys. Scr. **16**, 72–76 (1977).
Energy Levels and Transition Probabilities in Mo XIV.
Mo XIV: EL CL IP
4235. Davis, D. S.; Andrew, K. L.; J. Opt. Soc. Am. **68**(2), 206–235 (1978).
A Remeasurement of the Photographic Emission Spectrum of Neutral Vanadium (V I).
V I: CL W
4236. Davis, D. S.; Andrew, K. L.; Verges, J.; J. Opt. Soc. Am. **68**(2), 235–242 (1978).
Infrared Emission Spectrum of Neutral Vanadium (V I).
V I: EL CL W
4237. Deech, J. S.; Luybaert, R.; Pendrill, L. R.; Series, G. W.; J. Phys. B **10**(5), L137–L141 (1977).
Lifetimes, Depopulation Cross Sections and Hyperfine Structures of Some Rydberg S and D States of ^{133}Cs .
Cs I: Hfs
4238. Douglas, M.; Cargese Lect. Phys. **7**, 24–41 (1977).
Fine Structure of Helium.

3. Bibliography Ordered by Reference Numbers—Continued

- He I: EL
4239. Eckstein, J. N.; Ferguson, A. I.; Hansch, T. W.; Phys. Rev. Lett. **40**(13), 847–850 (1978).
High-Resolution Two-Photon Spectroscopy with Picosecond Light Pulses.
Na I: EL Hfs
4240. Ferguson, A. I.; Dunn, M. H.; Opt. Commun. **23**(2), 227–230 (1977).
Detection of the Rydberg States of Rubidium Using a Frequency Doubled CW Dye Laser.
Rb I: EL CL
4241. Fredriksson, K.; Lundberg, H.; Svanberg, S.; Z. Phys. A **284**, 429–430 (1978).
Fine-Structure Measurements for Highly Excited F States of Cesium.
Cs I: EL
4242. Fischer, W.; Huhnermann, H.; Meier, T.; Z. Phys. A **274**, 79–85 (1975).
Nuclear Moments and Optical Isotope Shifts of $^{108\text{m}}\text{Ag}$ and $^{110\text{m}}\text{Ag}$.
Ag I: IS
4243. Giacobino, E.; J. Phys. (Paris) **38**, 1377–1379 (1977).
Mesure de facteurs de Lande dans la configuration $2p^5 3p$ du neon.
Ne I: ZE
4244. Hallstadius, L.; Hansen, J. E.; Z. Phys. A **285**, 365–370 (1978).
Experimental Determination of Isotope Shifts in Mg I.
Mg I: IS
4245. Heider, S. M.; Brink, G. O.; Phys. Rev. A **16**(4), 1371–1374 (1977).
Hyperfine Structure of ^{87}Sr in the $^3\text{P}_2$ Metastable State.
Sr I: Hfs
4246. Heinzmann, U.; J. Phys. B **11**(3), 399–412 (1978).
New Vacuum-Ultraviolet Absorption Data for Lead Vapour Obtained by Spin-Polarisation Measurements.
Pb I: CL
4247. Hirsch, J. M.; Zimmerman, G. H.; Larson, D. J.; Ramsey, N. F.; Phys. Rev. A **16**(2), 484–487 (1977).
Precision Measurement of the Hyperfine Structure and g_J Factor of Atomic Nitrogen 14.
N I: ZE Hfs
4248. Johnson, W. L.; McNeil, J. R.; Collins, G. J.; Persson, K. B.; Appl. Phys. Lett. **29**(2), 101–102 (1976).
cw Laser Action in the Blue-Green Spectral Region from Ag II.
Ag II: CL W
4249. Kennedy, E. T.; Carroll, P. K.; Phys. Lett. A **64**(1), 37–38 (1977).
Absorption from Excited States of Be^+ Formed in a Laser Produced Plasma.
Be II: CL
4250. Kennedy, E. T.; Carroll, P. K.; J. Phys. B **11**(6), 965–974 (1978).
Satellite Lines of Low-Z Elements (Li, Be, B) Observed in Laser-Produced Plasmas.
Li II, Be II, B III, IV, C IV, V: CL
4251. Kavei, G.; Ottley, T. W.; Pejcev, V.; Ross, K. J.; J. Phys. B **10**(14), 2923–2933 (1977).
High-Resolution Ejected-Electron Spectra of K I and K II Autoionising Levels Excited by Low-Energy Electron Impact on Potassium Vapour.
- K I: EL
4252. Hogervorst, W.; Zaal, G. J.; Bouma, J.; Blok, J.; Phys. Lett. A **65**(3), 220–222 (1978).
Isotope Shifts and Hyperfine Structure of Natural Dysprosium.
Dy I: Hfs IS
4253. Labarthe, J. J.; J. Phys. B **11**(1), L1–L4 (1978).
Calculation of Hyperfine-Structure Second-Order Effects on the Isotope Shifts in Sm I.
Sm I: IS PT
4254. Lluesma, E. G.; Tagliaferri, A. A.; Massone, C. A.; Garavaglia, M.; Gallardo, M.; IEEE J. Quantum Electron. **QE13**(10), 809–811 (1977).
Comments on the Ionic Assignment of Xenon Laser Lines at 3306 Å.
Xe III, IV: W
4255. Ma, W. T.; Kiriyan, M.; Pritchard, H. O.; Can. J. Chem. **56**(6), 884–889 (1978).
Variational Energies for Highly Excited States of the Helium Atom.
He I: AT
4256. Mansfield, M. W. D.; Connerade, J. P.; Proc. R. Soc. London, Ser. A **359**, 389–410 (1978).
On the Simultaneous Excitation of Two Electrons in Neutral Atomic Zinc.
Zn I: EL CL AT
4257. Mansfield, M. W. D.; Peacock, N. J.; Smith, C. C.; Hobby, M. G.; Cowan, R. D.; J. Phys. B **11**(9), 1521–1544 (1978).
The XUV Spectra of Highly Ionised Molybdenum.
Mo XV–XVII, XXX–XXXII: EL CL W
4258. Marling, J.; IEEE J. Quantum Electron **QE14**(1), 4–6 (1978).
Ultraviolet Ion Laser Performance and Spectroscopy for Sulfur, Fluorine, Chlorine, and Bromine.
Br IV: W
4259. Marling, J. B.; Lang, D. B.; Appl. Phys. Lett. **31**(3), 181–184 (1977).
Vacuum Ultraviolet Lasing from Highly Ionized Noble Gases.
Kr IV, V: W
4260. Marrus, R.; Comments. At. Mol. Phys. **7**(1–2), 53–58 (1977).
Recent Work on the Metastable State of Hydrogenic Ions.
H I: QF
4261. McNeil, J. R.; Johnson, W. L.; Collins, G. J.; Persson, K. B.; Appl. Phys. Lett. **29**(3), 172–174 (1976).
Ultraviolet Laser Action in He-Ag and Ne-Ag Mixtures.
Ag II: CL W
4262. Meggers, W. F.; Tech, J. L.; J. Res. Nat. Bur. Stand. (U.S.) **83**(1), 13–17 (1978).
The First Spectrum of Ytterbium (Yb I).
Yb I: EL CL W ZE IP
4263. Nagourney, W.; Happer, W.; Lurio, A.; Phys. Rev. A **17**(4), 1394–1407 (1978).
Level-Crossing Study of the Hyperfine Structure of Lithium.
Li I: Hfs
4264. Neuffer, D. V.; Commins, E. D.; Phys. Rev. A **16**(3), 844–862 (1977).
Calculation of Parity-Nonconserving Effects in the $6^2\text{P}_{1/2}$ – $7^2\text{P}_{1/2}$ Forbidden M1 Transition in Thallium.
Tl I: Hfs AT

3. Bibliography Ordered by Reference Numbers—Continued

4265. Neuffer, D. V.; Commins, E. D.; Phys. Rev. A **16**(5), 1760–1767 (1977).
Calculation of Parity-Nonconserving Effects in Forbidden M1 Transitions in Cesium.
Cs I: Hfs AT
4266. Nilsson, L.; Rydberg, S.; Phys. Scr. **17**, 53–54 (1978).
Fine Structure Investigation for the Lower States of the Rubidium D Series.
Rb I: EL
4267. Pejcev, V.; Ottley, T. W.; Rassi, D.; Ross, K. J.; J. Phys. B **10**(12), 2389–2398 (1977).
Ejected-Electron Spectrum of Mg I and Mg II Autoionising Levels Between 20 and 53 eV Excited by Low-Energy Electron Impact on Magnesium Vapour.
Mg I, II: EL
4268. Persson, W.; Pira, K.; Phys. Lett. A **66**(1), 22–24 (1978).
Fine-Structure Splittings of 2F States of Singly Ionized Strontium.
Sr II: EL
4269. Reid, R. D.; Gerstenberger, D. C.; McNeil, J. R.; Collins, G. J.; J. Appl. Phys. **48**(9), 3994 (1977).
Investigations of Unidentified Laser Transitions in Ag II.
Ag II: CL
4270. Shalimoff, G. V.; Conway, J. G.; J. Opt. Soc. Am. **68**(2), 267–268 (1978).
The $3d^2$ – $3d4f$ Transitions in V IV.
V IV: CL
4271. Sternheimer, R. M.; Rodgers, J. E.; Das, T. P.; Phys. Rev. A **17**(2), 505–512 (1978).
Effect of the Atomic Core on the Fine-Structure Splitting for Excited nd and nf States of the Alkali-Metal Atoms.
Na I, Cs I: EL
4272. Aleksakhin, I. S.; Bogachev, G. G.; Ugrin, S. Yu.; Shishova, T. A.; Opt. Spectrosc. (USSR) **45**(2), 119–121 (1978).
Spectra of Radiation in the 54–126 nm Range Excited by the Collision of Electrons with Lead Atoms.
Pb II–IV: CL W
4273. van Wijngaarden, A.; Drake, G. W. F.; Phys. Rev. A **17**(4), 1366–1374 (1978).
Deuterium Lamb Shift via Quenching–Radiation Anisotropy Measurements.
H I: QF
4274. Wilson, M.; Phys. Lett. A **65**(3), 213–214 (1978).
Ab Initio Calculation of Isotope Shifts in Ba II.
Ba II: IS AT
4275. Winter, H.; Gaillard, M.; J. Phys. B **10**(13), 2739–2747 (1977).
Hyperfine Structure in the $6p\ ^2P_{3/2}$ Level of $^{135}\text{Ba}^+$ and $^{137}\text{Ba}^+$ Using "In-Flight" Lamb-Dip Spectroscopy.
Ba II: Hfs
4276. Wieman, C. E.; J. Opt. Soc. Am. **67**(10), 1371 (1977).
Measurement of the Lamb Shift of the Hydrogen Ground State.
H I: QF
4277. Worden, E. F.; Solarz, R. W.; Paisner, J. A.; Conway, J. G.; J. Opt. Soc. Am. **68**(1), 52–61 (1978).
First Ionization Potentials of Lanthanides by Laser Spectroscopy.
Ce I, Nd I, Pm I, Sm I, Eu I, Gd I, Tb I: IP
Dy I, Ho I, Er I, Tm I, Yb I: IP
4278. Wynne, J. J.; Armstrong, J. A.; Esherick, P.; Phys. Rev. Lett. **39**(24), 1520–1523 (1977).
Zeeman Effect of $J=2$ States of Sr: g -Factor Variation for Interacting Rydberg Series.
Sr I: EL CL ZE
4279. Zimmerman, M. L.; Ducas, T. W.; Littman, M. G.; Kleppner, D.; J. Phys. B **11**(1), L11–L14 (1978).
Stark Structure of Barium Rydberg States.
Ba I: SE
4280. Aufmuth, P.; Z. Phys. A **286**, 235–241 (1978).
Isotope Shift and Configuration Mixing in Dysprosium II.
Dy II: IS PT
4281. Beier, R.; Kunze, H. J.; Z. Phys. A **285**, 347–352 (1978).
Observation of Line Radiation from Highly Charged Mo Ions in a Vacuum-Spark Plasma.
Mo XL: CL W
Mo XLI: CL
4282. Biraben, F.; Beroff, K.; Phys. Lett. A **65**(3), 209–212 (1978).
Hyperfine Interaction in the $4D_{3/2}$ and the $4D_{5/2}$ Levels of Sodium.
Na I: Hfs
4283. Bukstich, V. S.; Zapesochnyi, I. P.; Samsonov, V. V.; JETP Lett. **26**(3), 146–148 (1977).
Lithium Emission Spectra Excited in the 10–25 nm Region by Electron-Atom Collisions.
Li II, III: W
4284. Buttgenbach, S.; Dicke, R.; Gebauer, H.; Kuhnen, R.; Traber, F.; Z. Phys. A **286**, 333–340 (1978).
Hyperfine Structure of Six Low-Lying Fine Structure Levels of ^{191}Ir and ^{193}Ir and the $^{191}\Delta_{5/2}^{193}$ Hyperfine Anomaly.
Ir I: Hfs ZE PT
4285. Buttgenbach, S.; Dicke, R.; Gebauer, H.; Kuhnen, R.; Traber, F.; Z. Phys. A **286**, 125–131 (1978).
Hyperfine Structure of Seven Atomic Levels of ^{91}Zr and the ^{91}Zr Nuclear Electric Quadrupole Moment.
Zr I: Hfs PT
4286. Burkhalter, P. G.; Doschek, G. A.; Feldman, U.; Cowan, R. D.; J. Opt. Soc. Am. **67**(6), 741–747 (1977).
Laser-Produced X-Ray Spectra of the Fluorine Isoelectronic Sequence for Zn, Ge, and Se.
Zn XXII, Ge XXIV, Se XXVI: EL CL
4287. Campani, E.; Degan, G.; Gorini, G.; Polacco, E.; Opt. Commun. **24**(2), 203–206 (1978).
Measurement of the 8S Hyperfine Splitting in Cesium.
Cs I: Hfs
4288. Clua-Gonzalez, A. L.; J. Opt. Soc. Am. **68**(2), 251–259 (1978).
Optical Analysis of the Hyperfine Structure of ^{59}Co in the Region 4000–4300 Å.
Co I: Hfs CL
4289. Coolen, F. C. M.; van Schaik, N.; Physica (Utrecht) **93C**, 267–270 (1978).
Isotope Shift of the D-Lines of ^{20}Na .
Na I: IS
4290. Curtis, L. J.; Phys. Lett. A **64**(1), 43–46 (1977).
Fine Structure Separations for Resonance Transitions of the Cu I Isoelectronic Sequence.
Pd XVIII, Ag XIX, Cd XX, In XXI: EL
4291. Dembczynski, J.; Arcimowicz, B.; Wisniewski, K.; J. Phys. B **10**(14), 2951–2962 (1977).
Investigation of the Hyperfine Structure of ^{209}Bi in Some

3. Bibliography Ordered by Reference Numbers—Continued

- Levels of the Bi I Spectrum.
Bi I: Hfs
4292. Dohmann, H. D.; Liesen, D.; Pfeng, H.; Z. Phys. A **285**, 171–176 (1978).
High Resolution Spectroscopy of Prompt and Metastable Decaying Levels in Highly Ionized Argon, Especially of the Metastable 3P_2 -State of Ar^{16+} and the $^4P_{5/2}$ -State of Ar^{15+} .
Ar XVI, XVII: EL CL
4293. Dynefors, B. I.; Martinson, I.; Phys. Scr. **17**, 123–129 (1978).
Beam-Foil Studies of Ionized Sulfur.
S II–VII: CL W
4294. Garnir, H. P.; Baudinet-Robinet, Y.; Dumont, P. D.; Eidelsberg, M.; Phys. Scr. **17**, 463–465 (1978).
Study of S VII in the Vacuum Ultraviolet.
S VII: EL CL
4295. Brown, C. M.; Ginter, M. L.; J. Opt. Soc. Am. **68**(6), 817–825 (1978).
Absorption Spectrum of Ba I Between 1770 and 1560 Å.
Ba I: EL CL
4296. Hannebauer, F.; Buttlar, H. v.; Heckmann, P. H.; Phys. Scr. **17**, 479–482 (1978).
The Quartet Term System of Doubly Excited O VI.
O VI: EL CL
4297. Huhnermann, H.; Valentin, H.; Wagner, H.; Z. Phys. A **285**, 229–230 (1978).
Nuclear Moments and Optical Isotope Shift of ^{133}Xe .
Xe I: IS
4298. Husson, X.; Grandin, J. P.; J. Phys. B **11**(8), 1393–1398 (1978).
Hyperfine Structures in the $2p^53p$ Configuration of ^{21}Ne .
Ne I: Hfs
4299. Joshi, Y. N.; van Kleef, T. A. M.; Can. J. Phys. **55**, 1124 (1977).
Erratum: $4d^9 \rightarrow 4d^85p$ Transitions in Cd IV, Sn VI, Sb VII and the Resonance Lines of Sn V and Sb VI.
Sn VI, Sb VII: EL
4300. Joshi, Y. N.; van Kleef, T. A. M.; Physica (Utrecht) **94C**, 270–274 (1978).
The Sixth Spectrum of Selenium: Se VI.
Se VI: EL ND W IP
4301. Kas'yanov, Yu. S.; Mazing, M. A.; Chevokin, V. K.; JETP Lett. **25**(8), 348–351 (1977).
Time Dependence of X-Ray Spectrum of an Aluminum Laser Plasma.
Al XII, XIII: W
4302. Kim, Y.; Cheng, K.; J. Opt. Soc. Am. **68**(6), 836–842 (1978).
Transition Probabilities for the Resonance Transitions of Na-Like Ions.
Na I, Mg II, P V, Ar VIII, Fe XVI: AT
Kr XXVI, Mo XXXII, W LXIV, Au LXIX: AT
Th LXXX, Xe XLIV: AT
4303. Lecordier, R.; Helbert, J. M.; Physica (Utrecht) **94C**, 125–133 (1978).
Déplacement isotopique relatif dans les raies $\lambda = 4048.9$ Å, $\lambda = 5449.8$ Å et $\lambda = 5479.1$ Å du spectre du II du tellure.
Te II: IS
4304. Liberman, S.; Pinard, J.; Duong, H. T.; Juncar, P.; Vialle, J. L.; Jacquinot, P.; Huber, G.; Touchard, F.; Buettgenbach, S.; Pesnelle, A.; Thibault, C.; Klapisch, R.; C. R. Acad. Sci., Ser. B **286**, 253–255 (1978).
Première mise en évidence d'une transition optique dans l'atome de francium.
Fr I: EL CL
4305. Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **362**, 129–144 (1978).
The Simultaneous Excitation of Two Electrons in Atomic Cadmium.
Cd I: EL CL AT
4306. McGuire, M. D.; Petsch, R.; Werth, G.; Phys. Rev. A **17**(6), 1999–2004 (1978).
Precision Determination of the Ground-State Hyperfine Separation in $^{199}Hg^+$ Using the Ion-Storage Technique.
Hg II: Hfs
4307. Meijer, F. G.; Metsch, B. C.; Physica (Utrecht) **94C**, 259–269 (1978).
The Analysis of the Fourth Spectrum of Tantalum, Ta IV.
Ta IV: EL CL PT
4308. Mirza, M. Y.; Duley, W. W.; J. Phys. B **11**(11), 1917–1920 (1978).
Energy Levels for Highly Excited 2F States in Cs.
Cs I: EL
4309. Oluwole, A. F.; Phys. Scr. **15**, 339–340 (1977).
Determination of g-Factor Ratios for Cs^+ Ions and Cs Atoms.
Cs I, II: ZE
4310. Pejcev, V.; Ross, K. J.; J. Phys. B **10**(14), 2935–2941 (1977).
High-Resolution Ejected-Electron Spectrum of Caesium Vapour Autoionising Levels Excited by 30 to 400 eV Electrons.
Cs I: EL
4311. Persson, W.; Phys. Scr. **17**(4), 387–410 (1978).
An Extended Analysis of the Spectrum of Trebly Ionized Strontium.
Sr IV: EL CL IP PT
4312. Rassi, D.; Pejcev, V.; Ottley, T. W.; Ross, K. J.; J. Phys. B **10**(14), 2913–2921 (1977).
High-Resolution Ejected-Electron Spectrum of Magnesium Autoionising Levels Following Two Electron Excitation by Low-Energy Electron Impact.
Mg I: EL
4313. Rose, S. J.; Pyper, N. C.; Grant, I. P.; J. Phys. B **11**(5), 755–768 (1978).
Studies in Multiconfiguration Dirac-Fock Theory II. The Even-Parity Low-Lying Spectrum of Ba I.
Ba I: AT
4314. Salour, M. M.; Phys. Rev. A **17**(2), 614–622 (1978).
Isotopic Shift, Pressure Shift, and Pressure Broadening of the $7d'$ States of Neon Using Doppler-Free Two-Photon Absorption Spectroscopy.
Ne I: IS
4315. Shen, N. M.; Curry, S. M.; Opt. Commun. **20**(3), 392–396 (1977).
Multiphoton Excitation of Potassium.
K I: EL CL
4316. Srivastava, R. P.; Joshi, Y. N.; van Kleef, T. A. M.; Can. J. Phys. **56**(6), 744–752 (1978).
Levels in the $4d^86s$ and $4d^85d$ Configurations of the Fifth Spectrum of Indium: In V.
In V: EL ND CL PT IP
4317. Sugar, J.; Kaufman, V.; Spector, N.; J. Res. Nat. Bur.

3. Bibliography Ordered by Reference Numbers—Continued

- Stand. (U.S.) **83**(3), 233–245 (1978).
Spectrum and Energy Levels of Triply Ionized Ytterbium.
Yb IV: EL CL W PT
4318. Suzer, S.; Hush, N. S.; J. Phys. B **10**(18), L705–L709 (1977).
Satellites in the 304 Å Photoelectron Spectrum of Xe.
Xe II: CL
4319. To, K. X.; Drouin, R.; Can. J. Phys. **56**(3), 358–363 (1978).
Calculs et observations de nouvelles transitions dans le B IV doublement excite.
B IV: CL
4320. Verges, J.; Wyart, J. F.; Phys. Scr. **17**, 495–499 (1978).
Infrared Emission Spectrum of Lutecium and Extended Analysis of Lu I.
Lu I: EL ND CL W
4321. Worden, E. F.; Solarz, R. W.; Paisner, J. A.; Rajnak, K.; Shore, B. W.; Conway, J. G.; Colloq. Int. C.N.R.S. 273, 341–353 (1977).
Rydberg Series in the Lanthanides and Actinides Observed by Stepwise Laser Excitation.
Ce I, Nd I, Sm I, Eu I, Gd I: IP
Tb I, Dy I, Ho I, Er I: IP
4322. Adam, M. Y.; Wuilleumier, F.; Krummacher, S.; Schmidt, V.; Mehlhorn, W.; J. Phys. B **11**(14), L413–L420 (1978).
Correlation Satellites in the Outer-Shell Photoelectron Spectrum of Argon.
Ar II: EL
4323. Ahmad, S. A.; Saksena, G. D.; Venugopalan, A.; Indian J. Pure Appl. Phys. **14**, 835–837 (1976).
Odd-Even Staggering Parameters of ^{143}Nd & ^{145}Nd .
Nd I, II: IS
4324. Andersen, T.; Isaksen, S.; Iversen, D. B.; Ramanujam, P. S.; Phys. Rev. A **18**(3), 1079–1084 (1978).
Fine Structure of the ^2D and ^2F Sequences in Mg II Investigated by Level Crossing and Anticrossing Spectroscopy.
Mg II: EL
4325. Anisimova, G. P.; Ryzhakova, E. I.; Semenov, R. I.; Opt. Spectrosc. (USSR) **44**(1), 10–12 (1978).
Fine Structure of the Triplet Term of the $1s3d$ Configuration of He I.
He I: EL
4326. Behring, W. E.; Cohen, L.; Feldman, U.; Astrophys. J. **175**, 493–523 (1972).
The Solar Spectrum: Wavelengths and Identifications from 60 to 385 Angstroms.
S XII: CL
4327. Bhatia, K. S.; J. Phys. B **11**(14), 2421–2434 (1978).
Spectrum of Doubly Ionised Indium.
In III: EL CL IP
4328. Beguin-Renier, F.; Desesquelles, J.; Gaillard, M. L.; Phys. Scr. **18**, 21–25 (1978).
Hyperfine Structure in the $5s\ (3/2)\ [3/2]_2^o$ and $5p\ (3/2)\ [1/2]$ Levels of $^{85}\text{Rb}^+$ and $^{87}\text{Rb}^+$ using "In-Flight" Saturated Absorption Laser Spectroscopy.
Rb I: Hfs
4329. Boiko, V. A.; Pikuz, S. A.; Safronova, A. S.; Faenov, A. Ya.; J. Phys. B **11**(17), L503–L506 (1978).
X-Ray Spectra of Y XXXI and Mo XXXIV Ions from Laser-Produced Plasmas.
Y XXXI, Mo XXXIV: EL CL
4330. Boiko, V. A.; Chugunov, A. Yu.; Ivanova, T. G.; Faenov, A. Ya.; Holin, I. V.; Pikuz, S. A.; Urnov, A. M.; Vainshtein, L. A.; Safronova, U. I.; Mon. Not. R. Astron. Soc. **185**, 305–323 (1978).
He-Like Ion Resonance-Line Satellites Radiated from Be-Like Ions.
Mg IX, Al X, Ti XIX, V XX: CL AT
Cr XXI, Fe XXIII: CL AT
Si XI, P XII, S XIII, Cl XIV, Ar XV, K XVI: AT
Ca XVII, Sc XVIII, Mn XXII, Co XXIV, Ni XXV: AT
Cu XXVI, Zn XXVII: AT
4331. Bromage, G. E.; Cowan, R. D.; Fawcett, B. C.; Mon. Not. R. Astron. Soc. **183**, 19–28 (1978).
Atomic Structure Calculations Involving Optimization of Radial Integrals: Energy Levels and Oscillator Strengths for Fe XII and Fe XIII $3p\text{-}3d$ and $3s\text{-}3p$ Transitions.
Fe XII: EL CL AT PT
Fe XIII: CL AT PT
4332. Bunge, C. F.; At. Data Nucl. Data Tables **18**, 293–304 (1976).
Accurate Wavefunction for Atomic Beryllium.
Be I: AT
4333. Burkhalter, P. G.; Schneider, R.; Dozier, C. M.; Cowan, R. D.; Phys. Rev. A **18**(2), 718–725 (1978).
Spectra of Mo XXXI–XXXIV from Exploded-Mo-Wire Plasmas.
Mo XXXIII: EL CL
Mo XXXI, XXXII: PT
4334. Callaway, J.; Phys. Lett. A **66**(3), 201–203 (1978).
Two-Electron Excited States of Helium.
He I: AT
4335. Camus, P.; Debarre, A.; Morillon, C.; J. Phys. B **11**(13), L395–L398 (1978).
Two-Photon Absorption Spectroscopy in Ytterbium.
Yb I: W
4336. Chandler, G. S.; Int. J. Quantum Chem. **11**, 685–694 (1977).
Hulthen and Slater Type $2d$ Functions in Some Excited Configurations of Sulphur and Phosphorus.
S I, P I: AT
4337. Childs, W. J.; Goodman, L. S.; J. Opt. Soc. Am. **68**(10), 1348–1350 (1978).
Hyperfine Structure of Excited, Odd-Parity Levels in ^{139}La by Laser-Atomic-Beam Fluorescence.
La I: Hfs
4338. Connerade, J. P.; Aslam Baig, M.; Mansfield, M. W. D.; Radtke, E.; Proc. R. Soc. London, Ser. A **361**, 379–398 (1978).
The Absorption Spectrum of Ag I in the Vacuum Ultraviolet.
Ag I: EL ND CL W AT
4339. Dankwort, W.; J. Phys. B **10**(18), 3617–3625 (1977).
The Oscillator Strength of the Intercombination Line $3s3p\ ^3P_1^o - 3s^2\ ^1S_0$ in Mg I Including Core Polarisation and Relativistic Effects.
Mg I: AT
4340. Davies, P. B.; Handy, B. J.; Lloyd, E. K. M.; Smith, D. R.; J. Chem. Phys. **68**(3), 1135–1137 (1978).
Far Infrared Laser Magnetic Resonance Spectrum of the Oxygen Atom.
O I: EL
4341. Dere, K. P.; Astrophys. J. **221**, 1062–1067 (1978).
Spectral Lines Observed in Solar Flares between 171 and

3. Bibliography Ordered by Reference Numbers—Continued

- 630 Angstroms.
Fe XVII, XXI: W
4342. Driker, M. N.; Ivanov, L. N.; J. Phys. B **11**(10), 1695-1701 (1978).
Formally Exact Perturbation Theory with a Model Potential as a Zeroth-Order Approximation II. Spectra of Mo XIII, Mo XVII, Zr XI and Zr XV.
Mo XIII, XVII, Zr XI, XV: AT
4343. Dumont, P. D.; Garnir, H. P.; Baudinet-Robinet, Y.; J. Opt. Soc. Am. **68**(6), 825-829 (1978).
Beam-Foil Study of Sulfur between 500 and 1200 Å.
S IV: W
S V: CL
S VI: EL CL
4344. Edlen, B.; Phys. Scr. **17**(6), 565-574 (1978).
The Transitions 3s-3p and 3p-3d, and the Ionization Energy in the Na I Iso-Electronic Sequence.
S VI, Cl VII, Ar VIII, K IX, Ca X, Sc XI: SF IP
Ti XII, V XIII, Cr XIV, Mn XV, Fe XVI: SF IP
Co XVII, Ni XVIII, Cu XIX, Zn XX, Ga XXI: SF IP
Ge XXII, As XXIII, Se XXIV, Br XXV: SF IP
Mo XXXII: SF IP
4345. Edlen, B.; Smitt, R.; Sol. Phys. **57**, 329-339 (1978).
The Forbidden Transitions within 3s²3p⁵3d of Fe IX and Ni XI and 3s²3p⁴3d of Fe X and Ni XII.
Fe IX, X, Ni XI, XII: EL
4346. Ekberg, J. O.; Edlen, B.; Phys. Scr. **18**(2), 107-124 (1978).
Term Analysis of Fe IV.
Fe IV: EL ND CL
4347. Eriksson, K. B. S.; Astrophys. J. **222**, 398-399 (1978).
Observed Transitions Between the Levels of the Ground Configuration in S I.
S I: EL CL
4348. Fabre, C.; Haroche, S.; Goy, P.; Phys. Rev. A **18**(1), 229-237 (1978).
Millimeter Spectroscopy in Sodium Rydberg States: Quantum-Defect, Fine-Structure, and Polarizability Measurements.
Na I: EL
4349. Falcone, R. W.; Willison, J. R.; Young, J. F.; Harris, S. E.; Opt. Lett. **3**(5), 162-163 (1978).
Measurement of the He 1s2s ¹S₀ Isotopic Shift using a Tunable VUV Anti-Stokes Light Source.
He I: IS
- 4350A. Farley, J. W.; Diss. Abstr. Int. B **38**(1), 238 (1977).
Fine Structure and Hyperfine Structure Measurements in Excited States of Alkali Atoms by Dye Laser Spectroscopy.
Rb I: EL
4351. Fischer, C. F.; Ridder, D.; J. Phys. B **11**(13), 2267-2272 (1978).
Levels of 2p⁵3p⁵ in Ar²⁺.
Ar III: AT
4352. Gerhardt, H.; Matthias, E.; Sov. J. Quantum Electron. **7**(12), 1500-1502 (1977).
High-Resolution Spectrometer with a Dye Laser for the Measurement of Isotopic and Isomeric Shifts and Hyperfine Structure of Radioactive Isotopes.
Na I, Kr I: IS
4353. Glass-Maujean, M.; Julien, L.; Dohnalik, T.; J. Phys. B **11**(3), 421-430 (1978).
Stark-Induced Anticrossings in Hydrogen II. Experimental Study, Measurement of the ²P_{3/2}-²D_{3/2} Lamb Shifts in H(n=3 and 4).
H I: QF
4354. Goldsmith, J. E. M.; Weber, E. W.; Hansch, T. W.; Phys. Rev. Lett. **41**(22), 1525-1528 (1978).
New Measurement of the Rydberg Constant Using Polarization Spectroscopy of H_α.
H I: EL
4355. Heldt, J.; Kowalski, A.; Bull. Acad. Pol. Sci., Ser. Sci. Math., Astron., Phys. **25**(12), 1297-1302 (1977).
New Light Source of Forbidden Lines.
Mg I, Bi I: CL
4356. Huber, G.; Touchard, F.; Buttgenbach, S.; Thibault, C.; Klapisch, R.; Liberman, S.; Pinard, J.; Duong, H. T.; Juncar, P.; Vialle, J. L.; Jacquinet, P.; Pesnelle, A.; Phys. Rev. Lett. **41**(7), 459-462 (1978).
Isotope Shift of Eleven Cesium Isotopes Determined by Atomic-Beam Laser Spectroscopy.
Cs I: IS
4357. Joshi, Y. N.; Srivastava, R. P.; Can. J. Phys. **56**(9), 1157-1164 (1978).
Absorption Spectrum of Bismuth in the Region 2300-1250 Å. Using the Flash Pyrolysis Technique.
Bi I: EL CL IP
Bi II: CL
- 4358A. Keiser, G. M.; Diss. Abstr. Int. B **37**(12), 6187-6188 (1977).
A High Precision Determination of g_J(⁴He, 2 ³S₁)/g_J(¹H, 1 ²S_{1/2}).
He I, Rb I: ZE
4359. King, W. H.; J. Opt. Soc. Am. **68**(7), 1007-1008 (1978).
Relative Isotope Shifts in U I.
U I: IS
4360. Klapisch, M.; Schwob, J. L.; Finkenthal, M.; Fraenkel, B. S.; Egert, S.; Bar-Shalom, A.; Breton, C.; DeMichelis, C.; Mattioli, M.; Phys. Rev. Lett. **41**(6), 403-406 (1978).
Identification of Forbidden Lines in the Soft-X-Ray Spectrum of the TFR Tokamak.
Mo XV: ND
4361. Kononov, E. Ya.; Koshelev, K. N.; Sidel'nikov, Yu. V.; Sov. J. Plasma Phys. **3**(3), 375-381 (1977).
Spectra of Multiply Ionized Iron Atoms in a Low Inductance Vacuum Discharge Time-Varying Ionization Model for the "Plasma Point."
Fe XXIII-XXVI: EL CL
4362. Kowalski, J.; Neumann, R.; Suhr, H.; Winkler, K.; zu Putlitz, G.; Z. Phys. A **287**, 247-253 (1978).
Two-Photon Intracavity Dye Laser Spectroscopy of the 4S and 3D Term in ^{6,7}Li.
Li I: EL Hfs IS
4363. Kozlov, M. G.; Kotochigova, S. A.; Krylov, B. E.; Opt. Spectrosc. (USSR) **43**(4), 368-370 (1977).
Absorption Spectrum of Ytterbium Vapor in the 1700-1060 Å Region.
Yb I: W
4364. Kramer, P. B.; Pipkin, F. M.; Phys. Rev. A **18**(1), 212-223 (1978).
New Measurement of the Fine Structure in the 3 ³P State of ⁴He.
He I: EL

3. Bibliography Ordered by Reference Numbers—Continued

4365. Laughlin, C.; Constantinides, E. R.; Victor, G. A.; J. Phys. B **11**(13), 2243–2256 (1978).
Two-Valence-Electron Model-Potential Studies of the Be I Isoelectronic sequence.
Be I, B II, C III, N IV, O V, Ne VII: AT
4366. Lee, S. A.; Helmcke, J.; Hall, J. L.; Stoicheff, B. P.; Opt. Lett. **3**(4), 141–143 (1978).
Doppler-Free Two-Photon Transitions to Rydberg Levels: Convenient, Useful, and Precise Reference Wavelengths for Dye Lasers.
Rb I: IS
4367. Lemoigne, J. P.; Sage, F.; Leclerc, D.; J. Phys. (Paris) **39**, 125–128 (1978).
Optical Pumping of the Metastable ($2p^5 3s^3 P_0$) State of ^{21}Ne .
Ne I: ZE
4368. Livingston, A. E.; Berry, H. G.; Phys. Rev. A **17**(6), 1966–1975 (1978).
Fine Structure of the $1s2s2p^4 P^\circ$ and $1s2p^2^4 P$ Doubly Excited States in Lithiumlike Carbon, Nitrogen, and Oxygen.
C IV, N V, O VI: EL CL
4369. Lu, K. T.; Phys. Rev. A **16**(5), 2184–2186 (1977).
High-Lying Levels in Uranium Atomic Vapor Near the Ionization Limit.
U I: AT
4370. Luke, T. M.; J. Phys. B **11**(14), 2457–2466 (1978).
Low-Energy Singly and Doubly Excited Resonances in Neon: Behaviour of the Complex Photoionisation Amplitudes at the Resonances.
Ne II: EL CL
4371. Lundberg, H.; Rosen, A.; Z. Phys. A **286**, 329–330 (1978).
Estimate of the Wavelengths for the First and Second Resonance Lines in the Francium I Spectra.
Fr I: AT
4372. Major, F. G.; Werth, G.; Appl. Phys. **15**, 201–208 (1978).
Magnetic Hyperfine Spectrum of Isolated (^{199}Hg)⁺ Ions.
Hg II: Hfs
4373. McGuire, E. J.; Phys. Rev. A **14**(4), 1402–1410 (1976).
The L-MM Auger Spectra of Na and Mg.
Na I, Mg II: EL AT
4374. Odintsova, N. K.; Striganov, A. R.; Opt. Spectrosc. (USSR) **43**(4), 365–367 (1977).
Isotope Shift and Parameters of Deformation of Tungsten Nuclei.
W I: IS
4375. Normand, D.; Petite, G.; Morellec, J.; Phys. Lett. A **65**(4), 290–292 (1978).
Three-Photon Ionization of Cesium Atoms with Resonance on High Lying States.
Cs I: EL CL SE
4376. Pejcev, V.; Rassi, D.; Ross, K. J.; J. Phys. B **10**(16), L629–L633 (1977).
High-Resolution Ejected-Electron Spectrum of Cadmium Autoionising Levels Following Two-Electron Excitation by Low-Energy Electron Impact.
Cd I: EL CL W
4377. Peterson, K. L.; Parsons, M. L.; Phys. Rev. A **17**(1), 261–269 (1978).
Spectral Classification Using Pattern-Recognition Techniques. I. Feasibility with Hydrogen as a Model System.
Na I: CL
4378. Rahimullah, K.; Chaghtai, M. S. Z.; Khatoon, S.; Phys. Scr. **18**, 96–106 (1978).
The 4p–4d Transitions of Y VI, VII, VIII, Zr VII, VIII, IX, Nb VIII, IX, X and Mo IX, X, XI.
Y VI–VIII, Zr VII–IX: EL CL
Nb VIII–X, Mo IX–XI: EL CL
4379. Rassi, D.; Pejcev, V.; Ross, K. J.; J. Phys. B **10**(17), 3535–3542 (1977).
The Ejected-Electron Spectrum of Li I Autoionising Levels Excited by Low-Energy Electron Impact on Lithium Vapour.
Li I: EL CL
4380. Rosner, S. D.; Gaily, T. D.; Holt, R. A.; Phys. Rev. Lett. **40**(13), 851–854 (1978).
Laser-Fluorescence Ion-Beam Magnetic Resonance: Xe^+ Hyperfine Structure.
Xe II: Hfs
4381. Ryabtsev, A. N.; Sov. Astron. **21**(4), 519–520 (1977).
Laboratory Wavelengths of Forbidden Transitions in the Spectrum of Mn V.
Mn V: CL
4382. Saksena, G. D.; Ahmad, S. A.; Indian J. Phys. **50**, 126–130 (1976).
High Resolution Atomic Spectra of Rare Earths: Progress Report.
Nd I, II, Gd I, II: IS
4383. Sikorska, A.; Werel, K.; Heldt, J.; Bull. Acad. Pol. Sci., Ser. Sci. Math., Astron., Phys. **24**(8), 661–665 (1976).
Interferometric Analysis of the Spectral Lines for the He–Cd⁺ Laser Plasma.
Cd I: IS
4384. Veillette, P.; Marchand, P.; Can. J. Phys. **54**, 1208–1215 (1976).
Detection optique de niveaux hautement excités du Ne produits par impact électronique.
Ne I: EL CL
4385. Verkhovtseva, E. T.; Pogrebnyak, P. S.; Fogel, Ya. M.; Phys. Lett. A **65**(2), 106–108 (1978).
New Interpretation of Ultrasoft X-Ray Emission Spectrum of Argon in the Range of 250–270 eV.
Ar I: EL CL
4386. Weber, E. W.; Goldsmith, J. E. M.; Phys. Rev. Lett. **41**(14), 940–944 (1978).
Double-Quantum Saturation Spectroscopy in Hydrogen: Measurement of the $3P_{3/2}$ – $3D_{3/2}$ Lamb Shift.
H I: QF
4387. Widing, K. G.; Astrophys. J. **222**, 735–739 (1978).
Forbidden Lines of Fe XIX, Fe XX, and Fe XXI in Solar Flares.
Fe XIX–XXI, Ni XXI: CL
4388. Wilson, M.; Physica (Utrecht) **95B**, 129–133 (1978).
Ab Initio Calculation of Isotope Shifts in Ce II.
Ce II: IS AT
4389. Wyart, J. F.; Phys. Scr. **18**, 87–95 (1978).
A Systematic Study of Even Configurations in the Neutral Atoms of the Platinum Group.
Hf I, Ta I, Re I, Lu I: PT
4390. Wyart, J. F.; J. Opt. Soc. Am. **68**(2), 197–205 (1978).
Analysis of Lanthanide Atomic Spectra: Present State and Trends.
Nd II, Dy II, Er II, Tm II: PT
Ho II: EL PT

3. Bibliography Ordered by Reference Numbers—Continued

4391. Zherikhin, A. N.; Koshelev, K. N.; Kryukov, P. G.; Letokhov, V. S.; Chekalin, S. V.; JETP Lett. **25**(7), 302–303 (1977).
Observation of Intensity Anomalies at 58–78 Å in Cl VII Transitions in Two-Stage Plasma Heating by Ultrashort Laser Pulses.
Cl VII: W
4392. Agren, H.; Nordgren, J.; Selander, L.; Nordling, C.; Siegbahn, K.; J. Electron Spectrosc. Relat. Phenom. **14**, 27–39 (1978).
Multiplet Structure in the High-Resolution X-Ray Emission Spectrum of Neon.
Ne VIII–X: EL CL
4393. Ahlenius, T.; Larsson, S.; Phys. Rev. A **18**(4), 1329–1333 (1978).
Variational Calculation of the Lowest $2^{\circ}P$ and $4^{\circ}P$ States of Li and C^{3+} by the Hylleraas Method.
Li I, C IV: Hfs AT
4394. Aleksakhin, I. S.; Borovik, A. A.; Zapesochnyi, I. P.; JETP Lett. **26**, 314–316 (1978).
Electronic Spectra of Autoionization States of Barium, Observed in Electron–Atom Collisions.
Ba I, II: EL
4395. Aymar, M.; Coulombe, M.; At. Data Nucl. Data Tables **21**, 537–566 (1978).
Theoretical Transition Probabilities and Lifetimes in Kr I and Xe I Spectra.
Kr I, Xe I: PT
4396. Bashkin, S.; Leavitt, J. A.; Pisano, D. J.; Jones, K. W.; Griffin, P. M.; Pegg, D. J.; Sellin, I. A.; Kruse, T. H.; Nucl. Instrum. Methods **154**, 169–174 (1978).
A Survey of Problems in Beam-Foil Spectroscopy of Iron and Copper at Energies from 16 to 110 Me V.
Fe X–XVI: AT
4397. Becker, U.; Teppner, U.; Wusthof, U.; J. Phys. B **11**(14), 2435–2448 (1978).
Hyperfine Structure of the $7P$ States in the Configurations $3d^5 4p$ and $3d^4 4s 4p$ of ^{53}Cr .
Cr I: Hfs
4398. Berry, H. G.; DeSerio, R.; Livingston, A. E.; Phys. Rev. Lett. **41**(24), 1652–1655 (1978).
Lamb Shift and Fine Structure of $n=2$ in ^{35}Cl XVI.
Cl XVI: EL CL QF
4399. Berry, H. G.; Desesquelles, J.; Cheng, K. T.; Schectman, R. M.; Phys. Rev. A **18**(2), 546–551 (1978).
Ne I-Like Resonance Lines and Na I-Like Satellites in Argon and Chlorine.
Cl VIII, Ar IX: CL
4400. Beyer, H. F.; Gros, M.; Hippler, R.; Schartner, K. H.; Phys. Lett. A **68**(2), 215–216 (1978).
Observation of the Radiative $2s^0 2p^6 - 2s^1 2p^5$ Transitions in Ne III.
Ne III: CL
4401. Beyer, H. J.; Kollath, K. J.; J. Phys. B **11**(6), 979–991 (1978).
Measurement of Intervals Between $1,3D$ and High-L States of He for $n=7$ to 10 by Electric-Field Induced Anticrossings.
He I: EL
4402. Bogdanovich, P. O.; Kychkin, I. S.; Merkelis, G. V.; Rudzikas, Z. B.; Sivtsev, V. I.; Shadzhuyevne, S. D.; Bull. Acad. Sci. USSR, Phys. Ser. **41**(12), 121–125 (1977).
Theoretical Analysis of the Spectral Characteristics of Highly Charged Ions.
Fe XIX, XX, Si VII, Ca XIII: AT
4403. Bogdanovich, P. O.; Merkelis, G. V.; Rudzikas, Z. B.; Sadziuvienė, S. D.; Safronova, U. I.; Phys. Scr. **17**, 549–555 (1978).
Theoretical Investigation of Transition Probabilities for $2s^2 2p^2 - 2s 2p^3 - 2p^4$ of Ca XV, Fe XXI.
Ca XV, Fe XXI: AT
4404. Boiko, V. A.; Pikuz, S. A.; Safronova, A. S.; Faenov, A. Ya.; Opt. Spectrosc. (USSR) **44**(5), 498–500 (1978).
Transitions Between $1s^2 2s^2 2p^5 - 1s^2 2s^2 2p^4 3d$ and $1s^2 2s^2 2p^5 - 1s^2 2s^2 2p^4 3s$ Configurations in the Spectra of Fe XVIII–Zn XXI, Ge XXIV, and Se XXVI Ions.
Fe XVIII, Co XIX, Ni XX, Cu XXI, Zn XXII: EL CL
Ge XXIV, Se XXVI: EL CL
4405. Brandt, H. W.; Heilig, K.; Knockel, H.; Steudel, A.; Z. Phys. A **288**, 241–246 (1978).
Isotope Shift in the Ca I Resonance Line and Changes in Mean-Square Nuclear Charge Radii of the Stable Ca Isotopes.
Ca I: IS AT
4406. Brown, C. M.; Ginter, M. L.; J. Opt. Soc. Am. **68**(11), 1541–1558 (1978).
Absorption Spectrum of Mn I Between 1305 and 2040 Å.
Mn I: EL CL W IP
4407. Buchholz, B.; Kronfeldt, H. D.; Muller, G.; Voss, M.; Winkler, R.; Z. Phys. A **288**, 247–256 (1978).
Electric and Magnetic Hyperfine Structure Investigations in the $5s^2 5p^3$ and $5s^2 5p^2 6s$ Configurations of $^{121,123}\text{Sb}$.
Sb I: Hfs
4408. Bunge, C. F.; Bunge, A. V.; Phys. Rev. A **17**(3), 822–828 (1978).
Configuration-Interaction Studies of Transition Energies and Oscillator Strengths for the Lowest Quartet States of Neutral Lithium.
Li I: AT
4409. Burkhalter, P. G.; Dozier, C. M.; Stallings, C.; Cowan, R. D.; J. Appl. Phys. **49**(3), 1092–1098 (1978).
X-Ray Emission and Plasma Conditions in Exploded Fe Wires.
Fe XVIII, XIX, XXII, XXIII, XXV: CL
4410. Camus, P.; Morillon, C.; J. Phys. B **10**(5), L133–L136 (1977).
Experimental Study of High-Lying Even-Parity States in Barium by Two-Photon Absorption Spectroscopy.
Ba I: TA
4411. Champeau, R. J.; Leuchs, G.; Walther, H.; Z. Phys. A **288**, 323–326 (1978).
Level Crossing Measurement of the 3^2D Fine Structure of Lithium.
Li I: EL
4412. Clark, D. L.; Cage, M. E.; Greenlees, G. W.; Hyperfine Interact. **4**, 83–86 (1978).
The Hyperfine Anomaly of ^{161}Dy and ^{163}Dy .
Dy I: Hfs
4413. Connerade, J. P.; Proc. R. Soc. London, Ser. A **362**, 361–374 (1978).
On the Coupling of a Rydberg Series of Discrete Levels to a Continuum of Finite Bandwidth.
Ti I: EL ND CL AT

3. Bibliography Ordered by Reference Numbers—Continued

- In I, Ga I: ND AT
4414. Cooke, W. E.; Gallagher, T. F.; Phys. Rev. Lett. **41**(24), 1648-1652 (1978).
Observation of Pair Splittings in the Autoionization Spectrum of Ba.
Ba I: EL CL
4415. Davis, L. C.; Feldkamp, L. A.; Phys. Rev. A **17**(6), 2012-2022 (1978).
 $M_{2,3}$ Spectrum of Atomic Mn.
Mn I: AT
4416. Dohmann, H. D.; Pfeng, H.; Z. Phys. A **288**, 29-33 (1978).
Measurement of the Population of the $^4P_{5/2}$ -State in Ar^{15+} by Cascading Processes.
Ar XVI, XVII: EL
4417. Driker, M. N.; Ivanov, L. N.; Opt. Spectrosc. (USSR) **44**(4), 365-368 (1978).
Calculation of Complex Atomic Ions Using Relativistic Perturbation Theory with a Model Potential.
Zr XIII, Mo XV: AT
4418. Ekstrom, C.; Phys. Scr. **13**, 217-224 (1976).
Hyperfine Structure of ^{175}Lu and Nuclear Electromagnetic Moments of the Lutetium Isotopes $^{161-181}Lu$.
Lu I: Hfs
4419. El Sherbini, T. M.; Zaki, M. A.; J. Phys. B **11**(12), 2061-2068 (1978).
Perturbations in the $5p^46s$ and $5p^45d$ Configurations of Xe II.
Xe II: ND PT
4420. Fan, B.; Lurio, A.; Grischowsky, D.; Phys. Rev. Lett. **41**(21), 1460-1463 (1978).
Doppler-Tuned Hyperfine Spectroscopy of the Lithium Ion.
Li II: Hfs
4421. Fawcett, B. C.; Ridgeley, A.; Bromage, G. E.; Phys. Scr. **18**, 315-322 (1978).
The Spectrum Ar IX and Extended Spectral Classification in Ar V to Ar VIII and Ar X.
Ar V-X: CL
Ar IX: EL
4422. Gerhardt, H.; Matthias, E.; Schneider, F.; Timmermann, A.; Z. Phys. A **288**, 327-333 (1978).
Isotope Shifts and Hyperfine Structure of the $6s-7p$ Transitions in the Cesium Isotopes 133, 135, and 137.
Cs I: Hfs IS
4423. Gerstenkorn, S.; Chauville, J.; Tomkins, F.; Phys. Scr. **18**, 311-314 (1978).
Déplacements isotopiques et moments quadripolaires intrinsèques des isotopes pairs 234, 236 et 238 de l'uranium.
U I: IS
4424. Glass, R.; J. Phys. B **11**(20), 3459-3468 (1978).
The Fine and Hyperfine Structure of the $1s2p^2\ ^4P^e$ State of Lithium.
Li I: PT
4425. Glass, R.; J. Phys. B **11**(20), 3469-3477 (1978).
The Fine and Hyperfine Structure of the $1s2s2p\ ^4P^o$ State of Lithium: Doubly Excited States in Lithium.
Li I: PT
4426. Gould, H.; Marrus, R.; Phys. Rev. Lett. **41**(21), 1457-1460 (1978).
Lamb Shift in Hydrogenlike Argon.
Ar XVIII: QF
4427. Griffith, J. A. R.; Isaak, G. R.; New, R.; Ralls, M. P.; van Zyl, C. P.; J. Phys. B **10**(4), L91-L95 (1977).
Optical Heterodyne Spectroscopy Using Tunable Dye Lasers: Hyperfine Structure of Sodium.
Na I: Hfs
4428. Hansen, J. E.; Persson, W.; Phys. Rev. A **18**(4), 1459-1463 (1978).
Interpretation of the $5s$ Photoelectron Satellite Spectrum of Atomic Xe.
Xe II: EL ND ZE PT
4429. Hermann, G.; Abt, K. H.; Lasnitschka, G.; Z. Phys. A **288**, 113-118 (1978).
Mode-Crossing Signals of High Order on the $4d^95s^2\ ^2D_{5/2}$ State of Cd II Isotopes.
Cd II: ZE
4430. Hinnov, E.; Mattioli, M.; Phys. Lett. A **66**(2), 109-111 (1978).
Observations of Multiply Ionized Tungsten Radiation in the PLT Discharges.
W XX-XXXV: TA
4431. Hocker, L. O.; J. Opt. Soc. Am. **68**(2), 262-265 (1978).
High-Resolution Study of the Helium-Fluorine Laser.
F I: Hfs
4432. Incesu, T.; Huq, A.; Shugart, H. A.; Phys. Rev. A **18**(3), 797-801 (1978).
 g_J Factor of Metastable 5S_2 Atomic Oxygen Using a Time-of-Flight, Atomic-Beam Magnetic-Resonance Method.
O I: ZE
4433. Johansson, S.; Phys. Scr. **18**(4), 217-265 (1978).
The Spectrum and Term System of Fe II.
Fe II: EL CL W IP
4434. Kastner, S. O.; Swartz, M.; Bhatia, A. K.; Lapides, J.; J. Opt. Soc. Am. **68**(11), 1558-1564 (1978).
Observations of $n=3 \rightarrow n'=4$ Transitions in the Mg I and Si I Sequences for Elements Chromium through Zinc.
Sc X, Ti XI, Co XVI, Ni XVII, Cu XVIII: CL
Cr XI, Mn XII, Co XIV, Ni XV, Cu XVI: EL CL
Ca IX, Fe XV, Zn XIX: PT CL
Ca VII, Zn XVII: PT
Fe XIII: PT EL CL
4435. Kaufman, V.; Sugar, J.; J. Opt. Soc. Am. **68**(11), 1529-1541 (1978).
Analysis of the Spectrum of Four-Times-Ionized Lutetium (Lu V).
Lu V: EL CL PT
4436. Klapisch, M.; Bar-Shalom, A.; Schwob, J. L.; Fraenkel, B. S.; Breton, C.; de Michelis, C.; Finkenthal, M.; Mattioli, M.; Phys. Lett. A **69**(1), 34-36 (1978).
Identification of Magnetic Quadrupole Lines of Highly Ionized Ni, Cr, Fe in the TFR600 Tokamak Plasma.
Cr XV, Fe XVII, Ni XIX: CL
4437. Langendam, P. J. K.; Van der Wiel, M. J.; J. Phys. B **11**(20), 3603-3613 (1978).
Fine Structure of the Neon 18.5-18.7 eV Resonances Resolved by Means of Resonant Free-Free Radiative Absorptions.
Ne II: EL
4438. Lu, K. T.; Tomkins, F. S.; Crosswhite, H. M.; Crosswhite, H.; Phys. Rev. Lett. **41**(15), 1034-1036 (1978).
Absorption Spectrum of Atomic Lithium in High Magnetic Fields.
Li I: TA
4439. Lu, K. T.; Tomkins, F. S.; Garton, W. R. S.; Proc. R.

3. Bibliography Ordered by Reference Numbers—Continued

- Soc. London, Ser. A **362**, 421–424 (1978).
Configuration Interaction Effect on Diamagnetic Phenomena in Atoms: Strong Mixing and Landau Regions.
Ba I, Sr I: TA
4440. Mason, H. E.; Bhatia, A. K.; Mon. Not. R. Astron. Soc. **184**, 423–437 (1978).
Theoretical Intensity Ratios for the UV Lines of Mg VII, Si IX and S XI.
Mg VII, Si IX, S XI: AT
4441. Migdalek, J.; Les, Z.; Banasinska, E.; Can. J. Phys. **53**, 1236–1239 (1975).
The Specific Mass Shift of the Resonance State and Resonance Line in Li I.
Li I: IS
4442. Palenius, H. P.; Huffman, R. E.; Larrabee, J. C.; Tanaka, Y.; J. Opt. Soc. Am. **68**(11), 1564–1574 (1978).
The Absorption Spectrum of Fluorine F I Observed with the Helium Continuum.
F I: EL CL
O I: CL
4443. Palmer, B. A.; Thesis, Purdue Univ., 237 pp. (1977).
The First Spectrum of Yttrium and an Automatic Comparator for its Measurement.
Y I: EL CL W PT
Yb II: EL W
4444. Poulsen, O.; Hall, J. L.; Phys. Rev. A **18**(3), 1089–1096 (1978).
Spectroscopic Investigations in ^{209}Bi I using Tunable-CW-Dye-Laser Spectroscopy.
Ba I: EL CL Hfs
4445. Rose, S. J.; Grant, I. P.; Pyper, N. C.; J. Phys. B **11**(20), 3499–3512 (1978).
Studies in Multiconfiguration Dirac-Fock Theory IV. The Low-Lying Spectrum of Bismuth I.
Bi I: AT
4446. Rosenbluh, M.; Panock, R.; Lax, B.; Phys. Rev. A **18**(3), 1103–1114 (1978).
Motional-Stark-Effect Spectroscopy: $7\ ^1\text{S}$ – $9\ ^1\text{P}$ Energy Separation and Zeeman Tuning Parameters for ^4He .
He I: EL
4447. Rubbmark, J. R.; Borgstrom, S. A.; Phys. Scr. **18**, 196–208 (1978).
Rydberg Series in Strontium Found in Absorption by Selectively Laser-Excited Atoms.
Sr I: EL CL IP
4448. Rubinsztein, H.; Gustavsson, M.; Phys. Scr. **28**, 209–216 (1978).
Atomic-Beam Magnetic Resonance Studies of the Refractory Elements: Nuclear Spin and Hyperfine Structure Measurements.
Mo I: ZE Hfs
4449. Sinanoglu, O.; Luken, W.; J. Chem. Phys. **64**(10), 4197–4204 (1976).
Predicted Lifetimes, Oscillator Strengths, and Wavelengths of Highly Ionized Many-Electron Heavy Atoms (P XI to Sn XLVI), with Both Relativistic and Correlation Effects.
P XI, Ca XVI, Mn XXI, Zn XXVI, Br XXXI: PT
Zr XXXVI, Rh XLI, Sn XLVI: PT
4450. Suckewer, S.; Hinnov, E.; Phys. Rev. Lett. **41**(11), 756–759 (1978).
Observation of a Forbidden Line of Fe XX and Its Application for Ion Temperature Measurements in the Princeton Large Torus Tokamak.
Fe XX: EL CL
4451. Takatsuka, K.; Fueno, T.; J. Chem. Phys. **69**(2), 661–669 (1978).
The Spin-Optimized SCF General Spin Orbitals. II. The $2\ ^2\text{S}$ and $2\ ^2\text{P}$ States of the Lithium Atom.
Li I: AT
4452. Tatewaki, H.; Phys. Rev. A **18**(5), 1826–1836 (1978).
Electronic Structure of Silicon Rydberg Series. I. The $(3\text{pnd})\ ^1\text{D}^\circ$, $^3\text{D}^\circ$, $^1\text{F}^\circ$, and $^3\text{F}^\circ$ Series.
Si I: AT
4453. Tatewaki, H.; Sasaki, F.; Phys. Rev. A **18**(5), 1837–1845 (1978).
Electronic Structure of Silicon Rydberg Series. II. The $(3\text{pns})\ ^1\text{P}^\circ$, $^3\text{P}^\circ$ and $(3\text{pnd})\ ^1\text{P}^\circ$, $^3\text{P}^\circ$ Series.
Si I: AT
4454. Tsukakoshi, M.; Shimoda, K.; Jpn. J. Appl. Phys. **17**(8), 1433–1434 (1978).
Observation of Isotope Shifts in Three-Level Systems of Atomic Xenon.
Xe I: IS
4455. Duong, H. T.; Liberman, S.; Pinard, J.; Opt. Commun. **18**(4), 533–535 (1976).
Detection and Study of Rb I Rydberg States.
Rb I: TA
4456. Vainshtein, L. A.; Vinogradov, A. V.; Safronova, U. I.; Skobelev, I. Yu.; Sov. J. Quantum Electron. **8**(2), 239–242 (1978).
Stimulated Emission in Far Ultraviolet Due to Transitions in Multiply Charged Neon-Like Ions.
Al IV, Si V, P VI, S VII, Cl VIII, Ar IX: SF
K X, Ca XI, Sc XII, Ti XIII, V XIV, Fe XVII: SF
4457. van Kleef, T. A. M.; Metsch, B. C.; Physica (Utrecht) **95C**, 251–265 (1978).
Term Analysis of Single Ionized Iridium (Ir II).
Ir II: EL CL
4458. Wilden, D. G.; Comer, J.; Hicks, P. J.; Nature (London) **273**, 651–653 (1978).
Threshold Effects in the Excitation of Autoionising States of Argon Atoms by Electron Impact.
Ar I: EL
4459. Zaal, G. J.; Hogervorst, W.; Eliel, E. R.; Bouma, J.; Blok, J.; J. Phys. B **11**(16), 2821–2823 (1978).
A High Resolution Study of the Transition $\lambda=451.1\text{ nm}$ in In I using a CW Dye Laser.
In I: IS
4460. Anton, K. R.; Kaufman, S. L.; Klempt, W.; Moruzzi, G.; Neugart, R.; Otten, E. W.; Schinzler, B.; Phys. Rev. Lett. **40**(10), 642–645 (1978).
Collinear Laser Spectroscopy on Fast Atomic Beams.
Na I, Cs I: Hfs
4461. Aymar, M.; Camus, P.; Dieulin, M.; Morillon, C.; Phys. Rev. A **18**(5), 2173–2183 (1978).
Two-Photon Spectroscopy of Neutral Barium: Observations of the Highly Excited Even Levels and Theoretical Analysis of the $J=0$ Spectrum.
Ba I: EL PT
4462. Baig, M. A.; Connerade, J. P.; Proc. R. Soc. London, Ser. A **364**, 353–366 (1978).
Extensions to the Spectrum of Doubly Excited Mg I in the Vacuum Ultraviolet.

3. Bibliography Ordered by Reference Numbers—Continued

- Mg I: EL CL AT
4463. Behring, W. E.; Cohen, L.; Feldman, U.; Doschek, G. A.; *Astrophys. J.* **203**, 521-527 (1976).
The Solar Spectrum: Wavelengths and Identifications from 160 to 770 Angstroms.
Fe IX-XVI: EL CL
4464. Bekov, G. I.; Letokhov, V. S.; Matveev, O. I.; Mishin, V. I.; *JETP Lett.* **28**(5), 283-285 (1978).
Observation of a Long-Lived Autoionization State in the Spectrum of the Gadolinium Atom.
Gd I: IP
4465. Bhatia, A. K.; *Phys. Rev. A* **18**(6), 2523-2526 (1978).
Autoionization States of Li, Be^+ , B^{2+} , and C^{3+} .
Li I, Be II, B III, C IV: AT
4466. Boiko, V. A.; Pikuz, S. A.; Safronova, U. I.; Faenov, A. Ya.; *Mon. Not. R. Astron. Soc.* **185**, 789-805 (1978).
Satellites to the He-Like Ion $1s^2 \text{ } ^1\text{S}_0\text{-}1s3p \text{ } ^1\text{P}_1$ Lines with $Z=12\text{-}19$ in Laser Plasmas.
Mg X, Al XI, Si XII, P XIII, S XIV: CL W AT
Cl XV, K XVII: CL W AT
4467. Breuckmann, B.; Schmidt, V.; Schmitz, W.; *J. Phys. B* **9**(17), 3037-3046 (1976).
The Electron Spectrum Following Ionization and Excitation of L-Shell Electrons in Magnesium Vapour.
Mg II: EL CL
4468. Cagnac, B.; *Sov. J. Quantum Electron.* **8**(8), 943-949 (1978).
Doppler-Free Many-Photon Spectroscopy.
Ne I: IS
4469. Cooke, W. E.; Gallagher, T. F.; Edelstein, S. A.; Hill, R. M.; *Phys. Rev. Lett.* **40**(3), 178-181 (1978).
Doubly Excited Autoionizing Rydberg States of Sr.
Sr I: TA EL
4470. Doschek, G. A.; Feldman, U.; *Astrophys. J.* **212**, L143-L146 (1977).
The Coronal Temperature and Nonthermal Motions in a Coronal Hole Compared with Other Solar Regions.
Si VIII, Fe X-XII: CL
4471. Dubke, M.; Jitschin, W.; Meisel, G.; Childs, W. J.; *Phys. Lett. A* **65**(2), 109-112 (1978).
Laser-RF Double-Resonance Measurement of the Quadrupole Moments of ^{95}Mo and ^{97}Mo .
Mo I: Hfs IS
4472. Edlen, B.; *Opt. Pura Apl. (Spain)* **10**, 123-129 (1977).
The ^2P Interval of $2s^22p^5$ and $2s^22p$.
Mg VIII, Si X, S VIII, XII, Ar X, Ca XII: CL
4473. Esherick, P.; Wynne, J. J.; Armstrong, J. A.; *Soc. Photo-Opt. Instrum. Eng., Laser Spectrosc. I* **113**, 121-127 (1977).
Multiphoton Ionization Spectroscopy of Alkaline Earth Atoms.
Ca I, Sr I: TA
4474. Feldman, U.; Doschek, G. A.; *J. Opt. Soc. Am.* **67**(6), 726-734 (1977).
Plasma Diagnostics using High-Resolution Spectroscopic Techniques.
O VII, Mg V-VII, Si VIII, S IX-XI, Ar XI: CL
Cr X, Mn XI, Fe IX-XIII, Ni XIII, XIV: CL
4475. Edwards, A. K.; *Int. Conf. Phys. Electron. At. Coll.*, 9th, July 24-30, 1975, Seattle, Washington, J. S. Risley and R. Geballe, Editors, pp. 790-799 (Univ. Washington Press, Seattle, 1975).
Collisionally Produced Autoionizing and Autodetaching States of Neutral Atoms and their Negative Ions.
Ar I: EL
4476. Fonck, R. J.; Roesler, F. L.; Tracy, D. H.; Lu, K. T.; Tomkins, F. S.; Garton, W. R. S.; *Phys. Rev. Lett.* **39**(24), 1513-1516 (1977).
Atomic Diamagnetism and Diamagnetically Induced Configuration Mixing in Laser-Excited Barium.
Ba I: TA
4477. Gagne, J. M.; Saint-Dizier, J. P.; Pianarosa, P.; *Opt. Commun.* **26**(3), 348-350 (1978).
Isotope Shift $^{238}\text{U}\text{-}^{233}\text{U}$ from Some Lines in the U I Spectrum.
U I: IS
4478. Gallagher, T. F.; Cooke, W. E.; *Phys. Rev. A* **18**(6), 2510-2516 (1978).
Fine-Structure Intervals and Polarizabilities of Highly Excited d States of K.
K I: EL
4479. Garcia-Riquelme, O.; *Opt. Pura Apl. (Spain)* **10**, 275-291 (1977).
Revision y extension del espectro Mn III.
Mn III: EL CL
4480. Gruzdev, P. F.; Loginov, A. V.; *Opt. Spectrosc. (USSR)* **44**(3), 353-354 (1978).
Probabilities of $2p^5np\text{-}2p^5ms$ ($n=3, 4$; $m=3, 4, 5$) Transitions in the Spectrum of Doubly Ionized Magnesium.
Mg III: AT
4481. Gupta, R.; *Int. Conf. Phys. Electron. At. Coll.*, 9th, July 24-30, 1975, Seattle, Washington, J. S. Risley and R. Geballe, Editors, pp. 712-725 (Univ. Washington Press, Seattle, 1975).
Hyperfine Structure of the Highly Excited States of Alkali Atoms.
Na I, K I, Rb I, Cs I: Hfs
4482. Iglesias, L.; *Opt. Pura Apl. (Spain)* **10**, 267-273 (1977).
Las configuraciones $3d^35s$, $3d^34d$ del espectro V II.
V II: EL CL
4483. Jorgensen, K.; Andersen, N.; Olsen, J. O.; *J. Phys. B* **11**(23), 3951-3968 (1978).
Autoionising Levels in Argon Excited by Low-Energy Heavy-Ion Impact.
Ar I: EL
4484. Kastner, S. O.; Bhatia, A. K.; Cohen, L.; *Phys. Scr.* **15**, 259-267 (1977).
Prediction and Identification of Some Transitions Associated with $2p^k$ and $2p^{k-1}3l$ Configurations in Six-, Seven- and Eight-Electron Ions.
Ne III, V, Mg V, VII, Si VII-IX, S IX-XI: PT
Ar XI-XIII, Ca XIII-XV, Ti XV-XVII: PT
Cr XVII-XIX, Fe XIX-XXI: PT
4485. Kelly, R. L.; Harrison, Jr., D. E.; *At. Data Nucl. Data Tables* **19**, 301-303 (1977).
Ionization Potential of Fe XVII in the Neon Isoelectronic Sequence, Revised Value.
Fe XVII: IP
4486. Khan, M. A.; *Opt. Commun.* **27**(2), 242-246 (1978).
New Classifications in the Spectra of Highly Ionized Cu and Zn in the Region Below 55 Å.
Cu XVI-XIX, Zn XVII-XX: CL W
4487. Klinkenberg, P. F. A.; *Opt. Pura Apl. (Spain)* **10**, 169-176 (1977).

3. Bibliography Ordered by Reference Numbers—Continued

- Interpretation of Zeeman Patterns of Tb II—Lines.
Tb II: EL CL ZE
4488. Kowalski, J.; Neumann, R.; Suhr, H.; Winkler, K.; zu Putlitz, G.; Sov. J. Quantum Electron. **8**(8), 974–975 (1978).
Doppler-Free Two-Photon Laser Spectroscopy of Lithium.
Li I: IS
4489. Leuchs, G.; Walther, H.; Proc. 3rd Int. Conf. Laser Spectrosc., July 4–8, 1977, Jackson Lake Lodge, Wyoming, J. L. Hall and J. L. Carlsten, Editors, pp. 299–305 (Springer Verlag, New York, 1977).
Investigation of the Fine Structure Splitting of Rydberg States.
Na I: EL
4490. Lewis, M. L.; Serafino, P. H.; Phys. Rev. A **18**(3), 867–888 (1978).
Second-Order Contributions to the Fine Structure of Helium From All Intermediate States.
He I: AT
4491. Livingston, A. E.; Dumont, P. D.; Baudinet-Robinet, Y.; Garnir, H. P.; Biemont, E.; Grevesse, N.; Int. Conf. Beam-Foil Spectrosc., 4th, Sept. 15–19, 1975, Gatlinburg, Tennessee, Vol. 1, I. A. Sellin and D. J. Pegg, Editors, pp. 339–346 (Plenum Press, New York, 1976).
Beam-Foil Studies of Nitrogen, Sulfur and Silicon in the Vacuum Ultraviolet.
N II, III: CL
4492. Loginov, A. V.; Gruzdev, P. F.; Opt. Spectrosc. (USSR) **43**(6), 609–611 (1977).
Semiempirical Calculation of Transition Probabilities and Lifetimes of Levels in Spectra of Ne II and Ar II Ions. Part I: Calculation of Intermediate Coupling Wave Functions.
Ne II, Ar II: ZE AT
4493. Mansfield, M. W. D.; Proc. R. Soc. London, Ser. A **364**, 135–144 (1978).
A New Interpretation of the Rb I 4p Subshell Excitation Spectrum Between 15 and 19 eV.
Rb I: EL ND AT PT
4494. Martin, P.; Campos, J.; J. Quant. Spectrosc. Radiat. Transfer **19**, 109–111, (1978).
Transition Probabilities of Lines with Origin in the $3d'(5/2)_2$, $3d'(5/2)_3$ and $3d'(3/2)_1$ Levels of Ne (I).
Ne I: CL
4495. Mirza, M. Y.; Duley, W. W.; Proc. R. Soc. London, Ser. A **364**, 255–263 (1978).
Two Photon Laser Spectroscopy of Indium.
In I: EL CL W
4496. Moore, S. M.; Lett. Nuovo Cimento **23**(5), 195–197 (1978).
A Temperature-Dependent Lamb Shift.
H I: QF
4497. Murphy, G.; Stewart, A. L.; J. Phys. B **11**(22), L685–L688 (1978).
Perturbed Hartree-Fock Wavefunctions for Lithium.
Li I: AT
4498. Nilsen, J.; Marling, J.; J. Quant. Spectrosc. Radiat. Transfer **20**, 327–329 (1978).
Oscillator Strengths of the First Forbidden Lines of Rubidium.
Rb I: W
4499. Pejcev, V.; Ottley, T. W.; Rassi, D.; Ross, K. J.; J. Phys. B **11**(3), 531–539 (1978).
High-Resolution Ejected-Electron Spectrum of Calcium Vapour Autoionising Levels Excited by Low-Energy Electron Impact.
Ca I, II: EL CL W
4500. Safronova, U. I.; Senashenko, V. S.; J. Phys. B **11**(15), 2623–2640 (1978).
Autoionising States of Three-Electron Atomic Systems. Fe XXIV, Ni XXVI: AT
4502. Spector, N.; Guttel, C.; Reisfeld, R.; Opt. Pura Apl. (Spain) **10**, 197–213 (1977).
Optical Spectrum, Free-Ion Wavefunctions and Radiative Transition Probabilities of Nd^{3+} ($4f^3$) in $\text{Gd}_2(\text{MoO}_4)_3$.
Nd IV: EL PT SE
4503. Srivastava, S. K.; Trajmar, S.; J. Phys. B **11**(19), 3433–3438 (1978).
Electron Impact Excitation of Autoionising States of Krypton.
Kr I: EL CL
4504. Wyart, J. F.; Opt. Pura Apl. (Spain) **10**, 177–195 (1977).
Etude systematique des configurations electroniques $(5d+6s)^N$ dans les elements une fois ionises du groupe du platine.
Lu II, Hf II, Ta II, W II, Re II, Pt II: PT
Au II: PT
Ta II: EL CL
4505. Zimmerman, M. L.; Castro, J. C.; Kleppner, D.; Phys. Rev. Lett. **40**(16), 1083–1086 (1978).
Diamagnetic Structure of Na Rydberg States.
Na I: TA
4506. Bohm, H. D. V.; Michaelis, W.; Weitkamp, C.; Opt. Commun. **26**(2), 177–182 (1978).
Hyperfine Structure and Isotope Shift Measurements on ^{235}U and Laser Separation of Uranium Isotopes by Two-Step Photoionization.
U I: Hfs IS
4507. Warner, J. W.; Blinder, S. M.; Chem. Phys. Lett. **56**(1), 164–166 (1978).
Relativistic Corrections in a Series of Helium Excited States.
He I: AT
4508. Desclaux, J. P.; Freeman, A. J.; J. Magn. Magn. Mater. **8**, 119–129 (1978).
Dirac-Fock Studies of Some Electronic Properties of Actinide Ions.
U IV–VI, Np IV–VII, Pu IV–VII: AT PT
Am III–VIII: AT PT
4509. Doschek, G. A.; Feldman, U.; Cohen, L.; Astrophys. J., Suppl. Ser. **33**(1), 101–111 (1977).
Chromospheric Limb Spectra from Skylab: 2000 to 3200 Å.
Fe II, Ne II, Co II: W
4510. Eriksonas, K. M.; Anisimova, G. P.; Semenov, R. I.; Boruta, I. I.; Tutlis, V. I.; Opt. Spectrosc. (USSR) **45**(2), 220–221 (1978).
Calculation of Energy Levels of the $2p^56d$ Ne I Configuration in a Magnetic Field.
Ne I: AT
4511. Feldman, U.; Doschek, G. A.; Astron. Astrophys. **61**, 295–296 (1977).
The Solar Spectrum in the Vicinity of the Si IV Lines at 1122 and 1128 Å.
Fe III: CL

3. Bibliography Ordered by Reference Numbers—Continued

4512. Lundeen, S. R.; Int. Conf. At. Masses Fundam. Constants, 5th, 1975, Paris, France, J. H. Sanders and A. H. Wapstra, Editors, pp. 571–577 (Plenum Press, New York, 1976).
Fast Beam Measurement of Hydrogen Fine Structure.
H I: QF
4513. Murakawa, K.; Betsuo, S.; Kaku Yugo Kenkyu, Bessatsu 40(2), 93–95 (1978).
Stark Shifts in He II Spectra.
He II: SE
4514. Paisner, J. A.; Solarz, R. W.; Worden, E. F.; Conway, J. G.; Proc. 3rd Int. Conf. Laser Spectrosc., July 4–8, 1977, Jackson Lake Lodge, Wyoming, J. L. Hall and J. L. Carlsten, Editors, pp. 160–169 (Springer Verlag, New York, 1977).
Identification of Rydberg States in the Atomic Lanthanides and Actinides.
Ce I, Pr I, Nd I, Pm I, Sm I, Eu I, Gd I: IP
Tb I, Dy I, Ho I, Er I: IP
4515. Podobedova, L. I.; Ramonas, A. A.; Ryabtsev, A. N.; Opt. Spectrosc. (USSR) 45(3), 237–239 (1978).
Transition $3d^2 4s-3d^2 4p$ in the Spectrum of Mn V.
Mn V: EL CL PT
4516. Rodbro, M.; Bruch, R.; Bisgaard, P.; J. Phys. B 10(8), L275–L279 (1977).
High-Resolution Be Auger Spectroscopy using Fast Be Ion Beams Excited in Single Gas Collisions.
Be I, II: EL
4517. Rodbro, M.; Bruch, R.; Bisgaard, P.; Dahl, P.; Fastrup, B.; J. Phys. B 10(13), L483–L487 (1977).
High-Resolution Auger Spectra of Boron Excited in 200 keV B^+ Single Collisions.
B I–III: EL
4518. Sandlin, G. D.; Brueckner, G. E.; Scherrer, V. E.; Tousey, R.; Astrophys. J. 205, L47–L50 (1976).
High-Temperature Flare Lines in the Solar Spectrum 171 Å–630 Å.
Ne VI, Ar XV, Ca XVIII, Ti XX, Cr XXI, XXII: CL
Mn XXII, XXIII, Fe XXII–XXIV, Co XVII, Ni XXVI: CL
4519. Schinzler, B.; Klemp, W.; Kaufman, S. L.; Lochmann, H.; Moruzzi, G.; Neugart, R.; Otten, E. W.; Bonn, J.; Von Reisky, L.; Spath, K. P. C.; Steinacher, J.; Weskott, D.; Phys. Lett. B 79(3), 209–212 (1978).
Collinear Laser Spectroscopy of Neutron-Rich Cs Isotopes at an On-Line Mass Separator.
Cs I: Hfs IS
4520. Silver, J. D.; Jelley, N. A.; McIntyre, L. C.; Appl. Phys. Lett. 31(4), 278–280 (1977).
Laser-Induced Resonances in High n States of Hydrogen-Like $^{19}\text{F}^{8+}$.
F IX: CL
- 4521A. Sjoedin, R.; Pihl, J.; Hallin, R.; Lindskog, J.; Marelus, A.; INIS Atomindex 8(11), 2683 (1977).
The $2s2p\ ^4P_{(5/2)}-2p^2\ ^4P_{(5/2)}^e$ Transition in O VI.
O VI: EL CL
4522. Kuplyauskis, Z. I.; Opt. Spectrosc. (USSR) 44(6), 701–702 (1978).
Energies of K–LL Auger Transitions in Neon.
Ne IV–IX: PT
4523. Abbott, D. C.; J. Phys. B 11(20), 3479–3497 (1978).
The Structure and Transition Probabilities of Ionised Cr, Mn, Fe and Ni.
Cr II–VI, Mn III–VI, Fe III–VI, Ni III–VI: AT
4524. Anisimova, G. P.; Semenov, R. I.; Opt. Spectrosc. (USSR) 41(2), 101–104 (1976).
Calculation of the Energies of the $1s3d$ Configuration Levels of Helium in a Magnetic Field.
He I: PT
4525. Bonn, J.; Huber, G.; Kluge, H. J.; Otten, E. W.; Z. Phys. A 276, 203–217 (1976).
Spins, Moments and Charge Radii in the Isotopic Series $^{181}\text{Hg}-^{191}\text{Hg}$.
Hg I: IS
4526. Breuckmann, E.; Breuckmann, B.; Mehlhorn, W.; Schmitz, W.; J. Phys. B 10(15), 3135–3150 (1977).
L–Auger and Autoionising Spectrum of Na.
Na I, II: EL
4527. Chang, T. N.; J. Phys. B 11(19), L583–L588 (1978).
Study of the Highly Excited Rydberg States of Quasi-Hydrogenic Atoms.
Rb I: AT
4528. Connerade, J. P.; J. Phys. B 11(14), L409–L411 (1978).
The Controlled Raising of Discrete Levels into the Far Continuum.
Cs I: AT
4529. Donahue, D. J.; McIntyre, L. C.; Rathmann, P.; J. Opt. Soc. Am. 68(7), 998–1000 (1978).
Beam-Foil Measurements of Mean Lives in B IV and B V below 450 Å.
B IV, V: CL
4530. Flambaum, V. V.; Khriplovich, I. B.; Sushkov, O. P.; Phys. Lett. A 67(3), 177–179 (1978).
g-Factor Anomalies and Strongly Forbidden M1 Transitions in Heavy Atoms.
Cs I, Tl I: ZE
4531. Forester, J. P.; Pegg, D. J.; Griffin, P. M.; Alton, G. D.; Elston, S. B.; Hayden, H. C.; Thoe, R. S.; Vane, C. R.; Wright, J. J.; Phys. Rev. A 18(4), 1476–1480 (1978).
Radiative Lifetimes and Oscillator Strengths for Allowed Intra-L-Shell Transitions in Multiply Charged Chlorine Ions.
Cl X, XII: CL
4532. Fryar, J.; McConkey, J. W.; J. Phys. B 9(4), 619–629 (1976).
Analysis of the Ejected-Electron Spectra of Ar Following Controlled Electron Impact.
Ar I: EL SF
4533. Johnson, W. R.; Lin, C. D.; Dalgarno, A.; J. Phys. B 9(11), L303–L306 (1976).
Allowed and Forbidden Transitions of Helium-Like Ions.
Mg XI, Ar XVII, Ca XIX, Fe XXV, Ni XXVII: AT
4534. Kozlov, M. G.; Kotochigova, S. A.; Opt. Spectrosc. (USSR) 45(4), 616–619 (1978).
Analysis of the Absorption Spectrum of Ytterbium Vapor in the Vacuum Ultraviolet Region. 1: Excitation of the $6s^2$ Shell.
Yb I: EL CL PT
4535. Kozlov, M. G.; Kotochigova, S. A.; Opt. Spectrosc. (USSR) 45(5), 742–744 (1978).
Analysis of the Absorption Spectrum of Ytterbium Vapor in the Vacuum Ultraviolet Region. 2: Excitation of the $4f^{14}$ Subshell.
Yb I: EL
4536. Kulagin, N. A.; Bogdanovich, P. O.; Ukr. Fiz. Zh. 21(9),

- 1422–1427 (1976).
Application of the Method of Configuration Superposition in Calculation of Rare-Earth Ions Spectra. I. Pr III in Configuration $4f^6 6s$.
Pr III: AT PT
4537. Marino, C. A.; Fulop, G. F.; Groner, W.; Moskowitz, P. A.; Redi, O.; Stroke, H. H.; Phys. Rev. Lett. **34**(10), 625–628 (1975).
Nuclear Magnetic Moments of $^{205}, ^{207}, ^{209}\text{Bi}$
Isotopes—Hyperfine Structure of the 15-Day ^{205}Bi 3067-Å Line.
Bi I: Hfs IS
4538. Mason, H. E.; Mon. Not. R. Astron. Soc. **171**, 119–130 (1975).
The Interpretation of the Forbidden Emission Lines from a Coronal Condensation.
Fe X, XI, XIII, XIV, Ca XII, XIII, XV: CL
4539. Parkinson, J. H.; Wolff, R. S.; Kestenbaum, H. L.; Ku, W. H. M.; Lemen, J. R.; Long, K. S.; Novick, R.; Suozzo, R. J.; Weisskopf, M. C.; Sol. Phys. **60**, 123–136 (1978).
Silicon X-Ray Line Emission from Solar Flares and Active Regions.
Mg XII, Al XIII, Si XII–XIV, S XVI: CL
4540. van Raan, A. F. J.; Baum, G.; Raith, W.; J. Phys. B **9**(7), L173–L176 (1976).
One- and Two-Photon Production of Very Highly Excited States of Caesium.
Cs I: TA
4541. Verkhovtseva, E. T.; Pogrebnayk, P. S.; Opt. Spectrosc. (USSR) **45**(5), 740–741 (1978).
Ultrasoft X-Ray Emission Spectrum of Krypton in the Region of the $M_{4,5} \rightarrow N_{2,3}$ Transition.
Kr I: CL
4542. Armstrong, J. A.; Wynne, J. J.; Esherick, P.; J. Opt. Soc. Am. **69**(2), 211–230 (1979).
Bound, Odd-Parity $J=1$ Spectra of the Alkaline Earths: Ca, Sr, and Ba.
Ca I, Sr I: EL
Ba I: EL PT IP
4543. Baudinet-Robinet, Y.; Dumont, P. D.; Garnir, H. P.; Biemont, E.; Grevesse, N.; J. Phys. (Paris), Colloq. C1 **40**, C1 175–C1 179 (1979).
Beam-Foil Study of Al II–VI between 1100 and 1900 Å.
Al VI: CL
4544. Mitchell, P.; J. Phys. B **12**(10), 1653–1655 (1979).
The $5p^5 6s^2$ Levels in Caesium.
Cs I: ND AT
4545. Bonn, J.; Klemp, W.; Neugart, R.; Otten, E. W.; Schinzler, B.; Z. Phys. A **289**, 227–228 (1979).
Hyperfine Structure and Isotope Shifts of Neutron Rich $^{138-142}\text{Cs}$.
Cs I: Hfs IS
4546. Bunge, C. F.; Phys. Rev. A **19**(3), 936–942 (1979).
Accurate Calculations for the Even-Parity Core-Excited 2P States of Neutral Li.
Li I: AT
4547. Burkhalter, P.; Davis, J.; Rauch, J.; Clark, W.; Dahlbacka, G.; Schneider, R.; J. Appl. Phys. **50**(2), 705–711 (1979).
X-Ray Line Spectra from Exploded-Wire Arrays.
Al XII, XIII, Si XIII, XIV, Ti XXI, XXII: TA
Cr XXII, XXIII, Fe XXIV–XXVI: TA
4548. Bruhn, R.; Sonntag, B.; Wolff, H. W.; J. Phys. B **12**(2), 203–212 (1979).
3p Excitations of Atomic and Metallic Fe, Co, Ni and Cu.
Fe I, Co I, Ni I, Cu I: EL CL W
4549. Cheng, C. C.; Doschek, G. A.; Feldman, U.; Astrophys. J. **227**, 1037–1046 (1979).
The Dynamical Properties of the Solar Corona from Intensities and Line Widths of EUV Forbidden Lines of Si VIII, Fe XI, and Fe XII.
Si VIII, Fe XI, XII: CL
4550. Childs, W. J.; Poulsen, O.; Goodman, L. S.; Opt. Lett. **4**, 35–37 (1979).
High-Precision Measurement of ^{235}U Ground-State Hyperfine Structure by Laser-Rf Double Resonance.
U I: Hfs IS AT
4551. Childs, W. J.; Poulsen, O.; Goodman, L. S.; Crosswhite, H.; Phys. Rev. A **19**(1), 168–176 (1979).
Laser-Rf Double-Resonance Studies of the Hyperfine Structure of ^{51}V .
V I: Hfs AT
4552. Childs, W. J.; Poulsen, O.; Goodman, L. S.; Phys. Rev. A **19**(1), 160–167 (1979).
Laser-Rf Double-Resonance Spectroscopy in the Samarium I Spectrum: Hyperfine Structures and Isotope Shifts.
Sm I: Hfs IS
4553. Childs, W. J.; Poulsen, O.; Goodman, L. S.; Opt. Lett. **4**, 63–65 (1979).
High-Precision Measurement of the Hyperfine Structure of the 620-cm^{-1} Metastable Atomic Level of ^{235}U by Laser-Rf Double Resonance.
U I: Hfs IS AT
4554. Clark, B. O.; Van Baak, D. A.; Lundeen, S. R.; Pipkin, F. M.; Phys. Rev. A **19**(2), 802–815 (1979).
 $3^2S_{1/2} - 3^2D_{5/2}$ Interval in Atomic Hydrogen. II.
Experiment and Results.
H I: EL
4555. Clieves, H. P.; Steudel, A.; Z. Phys. A **289**, 361–364 (1979).
Hyperfine Structure in the Gd II Spectrum and the Nuclear Electric Quadrupole Moment of ^{157}Gd .
Gd II: Hfs
4556. Connerade, J. P.; Rose, S. J.; Grant, I. P.; J. Phys. B **12**(2), L53–L55 (1979).
Two-Step Autoionisation and the Double Ionisation Anomaly in Ba I.
Ba II: AT
4557. Cooke, W. E.; Gallagher, T. F.; Opt. Lett. **4**(6), 173–175 (1979).
Measurement of $^1\text{D}_2 \rightarrow ^1\text{F}_3$ Microwave Transitions in Strontium Rydberg States using Selective Resonance Ionization.
Sr I: EL CL
4558. Connerade, J. P.; Baig, M. A.; Proc. R. Soc. London, Ser. A **365**, 253–265 (1979).
Single and Double Excitation Spectra Involving the 4d Subshell of Ag I.
Ag I: EL CL AT
4559. Connerade, J. P.; Mansfield, M. W. D.; Newsom, G. H.; Tracy, D. H.; Baig, M. A.; Thimm, K.; Philos. Trans. R. Soc. London, Ser. A **290**(1371), 327–352 (1979).
A Study of 5p Excitation in Atomic Barium. I. The 5p Absorption Spectra of Ba I, Cs I and Related Elements.
Ba I: EL CL W AT

3. Bibliography Ordered by Reference Numbers—Continued

4560. Cs I: AT
Denne, B.; Litzen, U.; Curtis, L. J.; Phys. Lett. A **71**(1), 35–38 (1979).
Energies and Lifetimes of the $4s4d\ ^1D$ and $4p^2\ ^1D$ in Ga II.
Ga II: EL CL
4561. Ederer, D. L.; Lucatorto, T. B.; Mehlman, G.; J. Opt. Soc. Am. **69**(4), 520–524 (1979).
Photoabsorption Spectrum of Mg I in the Range 226–170 Å (54–70 eV).
Mg I: EL CL
Mg II: EL
4562. Epstein, G. L.; Reader, J.; J. Opt. Soc. Am. **69**(4), 511–520 (1979).
Spectrum and Energy Levels of Triply Ionized Lanthanum (La IV).
La IV: EL CL W AT
4563. Erkoç, S.; J. Phys. B **12**(5), 705–707 (1979).
S Autoionising States of Li^+ .
Li II: AT
4564. Fawcett, B. C.; Bromage, G. E.; Hayes, R. W.; Mon. Not. R. Astron. Soc. **186**, 113–116 (1979).
Observed Spectra Due to $n=3$ to 4 Transitions in Fe XVII and Isoelectronic Spectra.
K X, Ca XI, Sc XII, Ti XIII, V XIV, Cr XV: CL
Mn XVI, Fe XVII, Ni XIX: CL
4565. Gallagher, T. F.; Cooke, W. E.; Appl. Phys. Lett. **34**(6), 369–371 (1979).
The Detection of 300°K Blackbody Radiation with Rydberg Atoms.
Na I: CL
4566. Gordon, H.; Hobby, M. G.; Peacock, N. J.; Cowan, R. D.; J. Phys. B **12**(6), 881–891 (1979).
Classification of X-Ray Spectra of 2–3 Transitions in the Ne–Like and Na–Like Isoelectronic Sequences of the Elements from Krypton to Molybdenum.
Kr XXV, Rb XXVI, Sr XXVII, Y XXVIII, Zr XXIX: W
Mo XXX, XXXI: W
Kr XXVI, XXVII, Rb XXVII, XXVIII, Sr XXVIII: CL
Sr XXIX, Y XXIX, XXX, Zr XXX, XXXI, Nb XXXII: CL
Mo XXXI–XXXIII: CL
4567. Guennou, H.; Sureau, A.; Carillon, A.; Jamelot, G.; J. Phys. B **12**(10), 1657–1664 (1979).
New Spectroscopic Results in the $2s2p^5$ – $2s2p^43s$ Transition Array of Mg^{4+} , Al^{5+} and Si^{6+} Ions.
Mg V, Al VI, Si VII: EL CL PT AT
4568. Glass, R.; J. Phys. B **12**(10), 1633–1645 (1979).
Excited States of Be–Like Ions: Wavefunctions and Oscillator Strengths of Transitions for C III, N IV, O V and Ne VII.
C III, N IV, O V, Ne VII: PT
4569. Gounand, F.; Hugon, M.; Fournier, P. R.; Berlande, J.; J. Phys. B **12**(4), 547–553 (1979).
Superradiant Cascading Effects in Rubidium Rydberg Levels.
Rb I: CL
4570. Griffith, J. A. R.; Isaak, G. R.; New, R.; Ralls, M. P.; van Zyl, C. P.; J. Phys. B **12**(1), L1–L7 (1979).
Anomalies in the Optical Isotope Shifts of Samarium.
Sm I: IS
4571. Hinnov, E.; Astrophys. J. **230**, L197–L199 (1979).
Observed Resonance Lines of Highly Ionized Titanium, Chromium, Iron, and Nickel in Tokamak Discharges.
- Ti XIX, XX, Cr XXI, XXII, Fe XXIII, XXIV: CL
Ni XXV, XXVI: CL
4572. Isaksen, S.; Andersen, A.; Andersen, T.; Ramanujam, P. S.; J. Phys. B **12**(6), 893–898 (1979).
Fine-Structure Measurement of the $3s3d\ ^3D$ and $3s4d\ ^3D$ States in Mg I.
Mg I: EL
4573. Jackson, D. A.; J. Opt. Soc. Am. **69**(4), 503–511 (1979).
Isotope Shifts in the Near Infrared Lines of the Arc Spectrum of Krypton.
Kr I: IS
4574. Johnson, W. R.; Cheng, K. T.; J. Phys. B **12**(6), 863–879 (1979).
Quantum Defects for Highly Stripped Ions.
C IV, N V: PT
4575. Kaufman, V.; Hagan, L.; J. Opt. Soc. Am. **69**(2), 232–239 (1979).
Spectrum and Energy Levels of Single Ionized Aluminum (Al II).
Al II: EL ND CL IP
4576. Kernahan, J. A.; Pinnington, E. H.; O'Neill, J. A.; Brooks, R. L.; Donnelly, K. E.; Phys. Scr. **19**, 267–270 (1979).
Radiative Lifetime Measurements in Al II–VII.
Al: W
4577. Khatoun, S.; Chaghtai, M. S. Z.; Rahimullah, K.; Phys. Scr. **19**, 22–24 (1979).
The $4p$ – $5d$, $6d$ and $4p$ – $6s$, $7s$ Transitions of Mo IX.
Mo IX: EL CL IP
4578. King, W. H.; J. Phys. B **12**(3), 383–386 (1979).
Isotope Shift and Configuration Interaction in U I.
U I: IS AT
4579. Klingbeil, U.; Kowalski, J.; Trager, F.; Wiegemann, H. B.; zu Putlitz, G.; Z. Phys. A **290**, 143–148 (1979).
Isotope Shift and Hyperfine Structure of ^{43}Ca by Laser Spectroscopy.
Ca I: Hfs IS
4580. Knystautas, E. J.; Drouin, R.; Druetta, M.; J. Phys. (Paris), Colloq. C1 **40**, C1 186–C1 189 (1979).
Nouvelles identifications et mesures de durees de vie dans l'argon hautement ionise.
Ar VII–IX: CL
Ar X–XII: W
4581. Knystautas, E. J.; Buchet-Poulizac, M. C.; Buchet, J. P.; Druetta, M.; J. Opt. Soc. Am. **69**(3), 474–478 (1979).
Beam-Foil Study of Fluorine in the Far UV.
F VI–VIII: CL
4582. Mansfield, M. W. D.; Ottley, T. W.; Proc. R. Soc. London, Ser. A **365**, 413–424 (1979).
The Identification of Low Energy K and Ca^+ Autoionizing Levels Observed in Electron Impact Experiments.
K I, Ca II: ND AT
4583. Mason, H. E.; Doschek, G. A.; Feldman, U.; Bhatia, A. K.; Astron. Astrophys. **73**, 74–81 (1979).
Fe XXI as an Electron Density Diagnostic in Solar Flares.
Fe XXI: AT
4584. McGuire, E. J.; J. Opt. Soc. Am. **69**(4), 525–532 (1979).
Configuration Interaction Effects on the Odd Parity Levels of S I.
S I: PT
4585. Mirza, M. Y.; Duley, W. W.; Opt. Commun. **28**(2), 179–182 (1979).

3. Bibliography Ordered by Reference Numbers—Continued

- Two-Photon Spectroscopy of Ytterbium.
Yb I: EL
4586. Mushtaq, A.; Chaghtai, M. S. Z.; Rahimullah, K.; J. Phys. B **12**(1), 19–23 (1979).
4p⁶4d–4p⁵4d5s Transitions in Y III, Zr IV, Nb V and Mo VI.
Y III, Zr IV, Nb V, Mo VI: EL CL
4587. Newton, G.; Andrews, D. A.; Unsworth, P. J.; Philos. Trans. R. Soc. London, Ser. A **290**(1373), 373–404 (1979).
A Precision Determination of the Lamb Shift in Hydrogen.
H I: QF
4588. O'Brien, R.; Silver, J. D.; Jelley, N. A.; Bashkin, S.; Trabert, E.; Heckmann, P. H.; J. Phys. B **12**(2), L41–L44 (1979).
Observations of 1s2s ³S–1s2p ³P Transitions in Helium-Like Si¹²⁺.
Si XIII: EL CL
4589. Panock, R.; Rosenbluh, M.; Lax, B.; Miller, T. A.; Phys. Rev. Lett. **42**(3), 172–175 (1979).
Laser-Driven Forbidden Transitions to High-L States in He.
He I: TA
4590. Petrini, D.; J. Phys. B **12**(10), L297–L299 (1979).
Position and Width of the Na "2s2p⁶3s²" Term.
Na I, II: AT
4591. Radtke, E. R.; J. Phys. B **12**(3), L71–L75 (1979).
On the Character of the Intense 4d→f Resonances in Atomic La and Tm.
La I, Tm I, II: AT
4592. Rauh, E. G.; Ackermann, R. J.; J. Chem. Phys. **70**(2), 1004–1007 (1979).
The First Ionization Potentials of the Transition Metals.
Y I, Zr I, Nb I, Mo I, Tc I, Ru I, Rh I, Pd I: IP
La I, Hf I, Ta I, W I, Re I, Os I, Ir I, Pt I: IP
4593. Reader, J.; Luther, G.; Acquista, N.; J. Opt. Soc. Am. **69**(1), 144–149 (1979).
Spectrum and Energy Levels of Thirteen-Times Ionized Molybdenum (Mo XIV).
Mo XIV: EL CL IP AT
4594. Reader, J.; Acquista, N.; J. Opt. Soc. Am. **69**(2), 239–253 (1979).
Spectrum and Energy Levels of Four-Times Ionized Zirconium (Zr V).
Zr V: EL CL IP AT
4595. Schumann, S.; Groeneveld, K. O.; Nolte, G.; Fricke, B.; Z. Phys. A **289**, 245–254 (1979).
Equilibrium K-Shell Excitation of Highly Ionized Neon.
Ne VI–VIII: EL CL
4596. Sugar, J.; Lucatort, T. B.; McIlrath, T. J.; Weiss, A. W.; Opt. Lett. **4**, 109–111 (1979).
Even-Parity Autoionizing States in Neutral Sodium (350–400 Å).
Na I: EL ND CL
4597. Sugar, J.; Kaufman, V.; J. Opt. Soc. Am. **69**(1), 141–143 (1979).
Identification of 5g and 6g Terms and Revised Ionization Energies in the Yb II 4f¹⁴nl Isoelectronic Sequence.
Lu III, Hf IV, Ta V, W VI, Re VII: EL CL
Os VIII: EL CL
4598. To, K. X.; Knystautas, E.; Drouin, R.; Berry, H. G.; J. Phys. (Paris), Colloq. C1 **40**, C1 3–C1 5 (1979).
Doubly Excited States of the Li I Isoelectronic Sequence.
Li I, Be II, B III, C IV, N V, O VI, F VII: AT
- Ne VIII: AT
4599. Trabert, E.; Heckmann, P. H.; Buttlar, H. v.; Z. Phys. A **290**, 7–12 (1979).
Highly Resolved EUV Beam-Foil Spectra of Silicon.
Si XII: W
4600. Trabert, E.; Armour, I. A.; Bashkin, S.; Jelley, N. A.; O'Brien, R.; Silver, J. D.; J. Phys. B **12**(10), 1665–1676 (1979).
The X-Ray Spectra of H-Like, He-Like and Li-Like Silicon Ions after Foil Excitation.
Si XI–XIV: CL W
4601. van Kleef, T. A. M.; Joshi, Y. N.; J. Opt. Soc. Am. **69**(1), 132–140 (1979).
Analysis of 4d⁹–4d⁸5p Transitions in Sb VII and Te VIII and the Ionization Limits of Sb VI and Te VII.
Sb VI, Te VII: EL CL IP
Sb VII, Te VIII: EL CL AT PT
4602. Vialle, J. L.; Duong, H. T.; J. Phys. B **12**(8), 1407–1423 (1979).
Field Ionisation Study of High Lying Rydberg States of Na.
Na I: TA
4603. White, M. D.; Rassi, D.; Ross, K. J.; J. Phys. B **12**(2), 315–322 (1979).
The Ejected-Electron Spectrum of Strontium Vapour Autoionising and Auger Levels Excited by 23.5 to 500 eV Electrons.
Sr I, II: EL W
4604. Worden, E. F.; Conway, J. G.; J. Opt. Soc. Am. **69**(5), 733–738 (1979).
Laser Spectroscopy of Neptunium; First Ionization Potential, Lifetimes and New High-Lying Energy Levels of Np I.
Np I: EL CL IP
4605. Wynne, J. J.; Hermann, J. P.; Opt. Lett. **4**, 106–108 (1979).
Spectroscopy of Even-Parity Autoionizing Levels in Ba.
Ba I: TA
4606. Ackermann, F.; Otten, E. W.; zu Putlitz, G.; Schenck, A.; Ullrich, S.; Nucl. Phys. A **248**, 157–172 (1975).
Determination of the Spectroscopic Quadrupole Moments of ¹³¹Cs, ¹³²Cs and ¹³⁶Cs.
Cs I: IS
4607. Kernahan, J. A.; Pinnington, E. H.; Donnelly, K. E.; O'Neill, J. A.; Brooks, R. L.; J. Phys. (Paris), Colloq. C1 **40**, C1 180–C1 182 (1979).
Beam-Foil Spectroscopy of Aluminum below 2000 Å.
Al V: CL
4608. Aglitskii, E. V.; Boiko, V. A.; Faenov, A. Ya.; Korneev, V. V.; Krutov, V. V.; Mandelstam, S. L.; Pikuz, S. A.; Safronova, U. I.; Sylwester, J. A.; Urnov, A. M.; Vainshtein, L. A.; Zhitnik, I. A.; Sol. Phys. **56**, 375–382 (1978).
New Satellite Structure of the Solar and Laser Plasma Spectra in Vicinity of the Lα (Mg XII) Line.
Mg XI: CL SF
4609. Apatin, V. M.; Letokhov, V. S.; Mishin, V. I.; Sov. J. Quantum Electron. **8**(3), 363–366 (1978).
Stark Effect in Sodium Atomic States Highly Excited by Laser Radiation.
Na I: EL SE
4610. Aymar, M.; Robaux, O.; J. Phys. B **12**(4), 531–546 (1979).

3. Bibliography Ordered by Reference Numbers—Continued

- Multichannel Quantum-Defect Analysis of the Bound Even-Parity $J=2$ Spectrum of Neutral Barium.
Ba I: ND AT
4611. Baird, P. E. G.; Brambley, R. J.; Burnett, K.; Stacey, D. N.; Warrington, D. M.; Woodgate, G. K.; Proc. R. Soc. London, Ser. A **365**, 567–582 (1979).
Optical Isotope Shifts and Hyperfine Structure in $\lambda 553.5$ nm of Barium.
Ba I: IS
4612. Beigman, I. L.; Boiko, V. A.; Pikuz, S. A.; Faenov, A. Ya.; Sov. Phys. JETP **44**(3), 511–515 (1976).
Collisional De-Excitation of Metastable Levels and the Intensities of the Resonance Doublet Components of Hydrogenlike Ions in a Laser Plasma.
Mg XII: CL
4613. Berry, H. G.; DeSerio, R.; Livingston, A. E.; J. Phys. (Paris), Colloq. C1 **40**, C1 27–C1 29 (1979).
Lamb Shift and Fine Structure of $n=2$ in ^{35}Cl XVI.
Cl XVI: QF
4614. Billy, N.; Lhuillier, C.; Faroux, J. P.; J. Phys. (Paris), Colloq. C1 **40**, C1 20–C1 23 (1979).
Study of Fine Structures of He^+ and Ne by Beam-Gas Spectroscopy.
Ne I, He II: EL
4615. Boiko, V. A.; Pikuz, S. A.; Safronova, A. S.; Faenov, A. Ya.; Bogdanovich, P. O.; Merkelis, G. V.; Rudzikas, Z. B.; Sadziuviene, S. D.; J. Phys. B **12**(12), 1927–1937 (1979).
Identification of Spectral Lines of Ions Belonging to the F I Isoelectronic Sequence with Nuclear Charge $Z=26-30$, 32 and 34 from Laser-Produced Plasmas.
Fe XVIII, Co XIX, Ni XX, Cu XXI, Zn XXII: CL AT
Ge XXIV, Se XXVI: CL AT
4616. Breit, G.; Kaveeshwar, V. G.; Singh, R. P.; Trans. N. Y. Acad. Sci. **38**, 10–13 (1977).
The Hyperfine Structure of the Ground State of Orthohelium in the Nonrelativistic Approximation.
He I: AT
4617. Bromander, J.; Hultberg, S.; Jelenkovic, B.; Liljeby, L.; Mannervik, S.; J. Phys. (Paris), Colloq. C1 **40**, C1 10–C1 13 (1979).
A Beam-Foil Study of Lithium.
Li I: CL W
4618. Buchholz, B.; Kronfeldt, H. D.; Winkler, R.; Physica (Utrecht) **96C**, 297–301 (1979).
Level Classification in the Configuration $5d^4 6s^2 6p$ of $^{185,187}\text{Re}$ I by Isotope Shift Measurements.
Re I: ND Hfs IS
4619. Buttgenbach, S.; Dicke, R.; Traber, F.; Phys. Rev. A **19**(4), 1383–1386 (1979).
Hyperfine-Structure Measurements in ^{183}W and the Contact Interaction in $5d^N 6s$ Atoms.
W I: ZE Hfs
4620. Chanussot, J.; Bull. Union Physiciens **70**(581), 559–561 (1976).
Structure fine d'atomes a un et deux electrons optiques.
Rb I, Cs I, Cd I: CL
4621. Cok, D. R.; Lundeon, S. R.; Phys. Rev. A **19**(5), 1830–1840 (1979).
Magnetic and Electric Fine Structure in Helium Rydberg States.
He I: EL
4622. Connerade, J. P.; J. Phys. B **12**(7), L223–L227 (1979).
Revised Assignments for $d^9 s^2 p^2$ and $d^9 s^2 p^3$ in Ga, In, Tl, Ge, Sn and Pb.
Tl I, Pb I: ND
4623. Dere, K. P.; Mason, H. E.; Widing, K. G.; Bhatia, A. K.; Astrophys. J., Suppl. Ser. **40**, 341–364 (1979).
XUV Electron Density Diagnostics for Solar Flares.
Ar XIII, XIV, Ca XV, XVI: PT
4624. Dietrich, D. D.; Leavitt, J. A.; Gould, H.; Marrus, R.; J. Phys. (Paris), Colloq. C1 **40**, C1 215–C1 217 (1979).
Wavelengths and Oscillator Strengths of Transitions in Kr XXXIII and Kr XXXIV.
Kr XXXIII, XXXIV: CL
4625. Ershov, L. S.; Zaleskii, V. Yu.; Sov. J. Quantum Electron. **8**(5), 649–650 (1978).
Collision-Induced $I(5^2P_{1/2}-5^2P_{3/2})$ Radiative Transition.
I I: CL
4626. Gould, H.; Marrus, R.; J. Phys. (Paris), Colloq. C1 **40**, C1 30–C1 33 (1979).
The Lamb Shift in Hydrogenlike Argon.
Ar XVIII: QF
4627. Grundevik, P.; Gustavsson, M.; Lindgren, I.; Olsson, G.; Robertsson, L.; Rosen, A.; Svanberg, S.; Phys. Rev. Lett. **42**(23), 1528–1531 (1979).
Precision Method for Hyperfine-Structure Studies in Low-Abundance Isotopes: The Quadrupole Moments of ^{43}Ca .
Ca I: Hfs
4628. Huber, G.; Touchard, F.; Buttgenbach, S.; Thibault, C.; Klapisch, R.; Duong, H. T.; Liberman, S.; Pinard, J.; Vialle, J. L.; Juncar, P.; Jacquinet, P.; Phys. Rev. C **18**(5), 2342–2354 (1978).
Spins, Magnetic Moments, and Isotope Shifts of $^{21-31}\text{Na}$ by High Resolution Laser Spectroscopy of the Atomic D_1 Line.
Na I: Hfs IS
4629. Huet, M.; Kucal, H.; Bignon, M. C.; Husson, X.; J. Phys. (Paris) **40**, 541–544 (1979).
Mesure par interferometrie optique de facteurs de Lande du xenon.
Xe I: ZE
4630. Husson, X.; Grandin, J. P.; Kucal, H.; J. Phys. (Paris) **40**, 551–555 (1979).
Mesure de la structure hyperfine de niveaux 6p, 7p, 4f et 5f du ^{129}Xe et ^{131}Xe .
Xe I: Hfs
4631. Lawler, J. E.; Ferguson, A. I.; Goldsmith, J. E. M.; Jackson, D. J.; Schawlow, A. L.; Phys. Rev. Lett. **42**(16), 1046–1049 (1979).
Doppler-Free Intermodulated Optogalvanic Spectroscopy.
He I: Hfs
4632. Lundberg, H.; Svanberg, S.; Z. Phys. A **290**, 127–130 (1979).
Determination of Natural Radiative Lifetimes and Lande Factors for Highly Excited F States in Cesium.
Cs I: ZE
4633. Martin, R. L.; Davidson, E. R.; Banna, M. S.; Wallbank, B.; Frost, D. C.; McDowell, C. A.; J. Chem. Phys. **68**(11), 5006–5009 (1978).
The X-Ray Photoelectron Spectrum of Atomic Sodium.
Na II: EL AT
4634. Miron, E.; David, R.; Erez, G.; Lavi, S.; Levin, L. A.;

3. Bibliography Ordered by Reference Numbers—Continued

- J. Opt. Soc. Am. **69**(2), 256–264 (1979).
Laser Spectroscopy of U I using Stepwise Excitation and Fluorescence Detection.
U I: EL
4635. Murnick, D. E.; Patel, C. K. N.; Leventhal, M.; Wood, O. R., II; Kugel, H. W.; J. Phys. (Paris), Colloq. C1 **40**, C1 34–C1 37 (1979).
Lamb Shift Studies in Cl^{16+} .
Cl XVII: QF
4636. Nunnemann, A.; Zimmermann, D.; Zimmermann, P.; Z. Phys. A **290**, 123–136 (1979).
Investigation of Hyperfine Structure and Isotope Shift of the 605.5 nm–Line of Lu^{176} by Laser Spectroscopy.
Lu I: Hfs IS
4637. Nussbaumer, H.; Storey, P. J.; J. Phys. B **12**(10), 1647–1652 (1979).
Transition Probabilities for Ca XVII, Fe XXIII, Kr XXXIII and Mo XXXIX.
Ca XVII, Fe XXIII, Kr XXXIII, Mo XXXIX: AT
4638. Nussbaumer, H.; Rusca, C.; Astron. Astrophys. **72**, 129–133 (1979).
Forbidden Transitions in the C I Sequence.
C I, O III, Mg VII, Ni XXIII: AT
4639. O'Neill, J. A.; Pinnington, E. H.; Donnelly, K. E.; Brooks, R. L.; J. Phys. (Paris), Colloq. C1 **40**, C1 194–C1 196 (1979).
Beam–Foil Spectroscopy of Iodine.
I VI: CL
4640. Peregudov, G. V.; Ragozine, E. N.; Skobelev, I. Yu.; Vinogradov, A. V.; Yukov, E. A.; J. Phys. D **11**, 2305–2311 (1978).
Measurements of Electron Density in Laser–Produced Plasmas from the XUV Spectra of Oxygen–Like Ions.
Ni XXI, Cu XXII: CL
4641. Pradhan, A. K.; Mon. Not. R. Astron. Soc. **184**, 89–92 (1978).
Fine–Structure Transitions by Electron Impact in Singly–Ionized Sulphur.
S II: AT
4642. Pye, J. P.; Evans, K. D.; Hutcheon, R. J.; Mon. Not. R. Astron. Soc. **178**, 611–618 (1977).
The Coronal Emission Line Spectrum 13.3 to 13.8 Å.
Fe XIX, XX: CL
4643. Rinkieff, R. H.; Z. Phys. A **288**, 233–239 (1978).
Tensor Polarizabilities of Levels of the Configurations $4f^{13}6s6p$ and $4f^{12}5d6s^2$ in Thulium I.
Tm I: AT
4644. Schorn, R. A.; Young, A. T.; Barker, E. S.; Sol. Phys. **43**, 9–14 (1975).
Forbidden Ca II in the Sun Unmasked by Way of Venus.
Ca II: CL
4645. Shorer, P.; Phys. Rev. A **18**(3), 1060–1065 (1978).
Effects of 3d Subshells on Resonance Oscillator Strengths for the Zinc Isoelectronic Sequence.
Ga II, Br VI, Mo XIII, W XLV, U LXIII: AT
4646. Svendenius, N.; Thesis, Univ. Lund, 106 pp. (1978).
The Spectrum and Term Analysis of Phosphorus I.
P I: EL CL AT
4647. Westerveld, W. B.; van Eck, J.; J. Phys. B **12**(3), 377–381 (1979).
Isotope Shift Between the Ground Level of ^{20}Ne and ^{22}Ne .
Ne I: IS
4648. White, M. D.; Rassi, D.; Ross, K. J.; J. Phys. B **12**(2), 315–322 (1979).
The Ejected–Electron Spectrum of Strontium Vapour Autoionising and Auger Levels Excited by 23.5 to 500 eV Electrons.
Sr I, II: EL CL
4649. Yeager, D. L.; Sun, H.; Freed, K. F.; Herman, M. F.; Chem. Phys. Lett. **57**(4), 490–495 (1978).
Ab Initio Calculation of the Effective Valence Shell Hamiltonian of Carbon: Simultaneous Treatment of Neutral and Ion States.
C I–IV: AT
4650. Bayanov, V. I.; Guildov, S. S.; Mak, A. A.; Peregudov, G. V.; Sobel'man, I. I.; Starikov, A. D.; Chirkov, V. A.; Sov. J. Quantum Electron. **6**(10), 1226–1233 (1976).
X–Ray Spectroscopic Investigation of the Spatial Distribution of the Parameters of a Laser Plasma Heated by 10^{-10} Sec Pulses.
Mg X, XI, K XVII, XVIII: TA
4651. Bitter, M.; von Goeler, S.; Horton, R.; Goldman, M.; Hill, K. W.; Sauthoff, N. R.; Stodiek, W.; Phys. Rev. Lett. **42**(5), 304–307 (1979).
Doppler–Broadening Measurements of X–Ray Lines for Determination of the Ion Temperature in Tokamak Plasmas.
Fe XXIV, XXV: EL CL
4652. Boiko, V. A.; Krokhin, O. N.; Pikuz, S. A.; Faenov, A. Ya.; Chugunov, A. Yu.; Sov. J. Plasma Phys. **1**(5), 427–429 (1975).
Study of Conical Accumulation of a Laser–Produced Plasma by X–Ray Spectroscopy.
P XIV: TA
4653. Boiko, V. A.; Pikuz, S. A.; Faenov, A. Ya.; Sov. J. Quantum Electron. **8**(2), 226–231 (1978).
Intensities of Resonance Line Satellites of Helium Like Ions with $Z=12$ –23 in Laser Plasma X–Ray Emission.
Mg XI, Al XII, Si XIII, P XIV, S XV, Cl XVI: TA
K XVIII, Ca XIX, Sc XX, Ti XXI, V XXII: TA
4654. Borovik, A. A.; Ukr. Fiz. Zh. **24**(1), 63–66 (1979).
Electron Spectra of Strontium Autoionization States.
Sr I, II: EL
4655. Butaux, J.; Jeannet, J. C.; Opt. Commun. **28**(1), 81–86 (1979).
Pulsed Dye Laser Absorption Spectroscopy with Metastable and Excited Mercury Atoms.
Hg I: Hfs IS
4656. Childs, W. J.; Goodman, L. S.; J. Opt. Soc. Am. **69**(6), 815–819 (1979).
Assignment of Unclassified Lines in Tb I through High–Resolution Laser–Fluorescence Measurements of Hyperfine Structure.
Tb I: CL ND Hfs
4657. Cohen, M.; McEachran, R. P.; J. Quant. Spectrosc. Radiat. Transfer **21**, 1–9 (1979).
The Polarized Frozen–Core Approximation: Application to Ionization Energies and Oscillator Strengths for Beryllium.
Be I: AT
4658. Dufay, M.; Carre, M.; Gaillard, M. L.; Meunier, G.; Winter, H.; Zgainski, Z.; Phys. Rev. Lett. **37**(25), 1678–1681 (1976).
High–Resolution Studies in Ion Beams with Laser Induced Resonances.

3. Bibliography Ordered by Reference Numbers—Continued

- Ba II: Hfs
4659. Eriksonas, K. M.; Yachauskas, I. P.; Semenov, R. I.;
Opt. Spectrosc. (USSR) **45**(6), 848–850 (1978).
Determination of the Weighting Factors of Wave Functions
from Experimental Data on g Factors.
Ne I: AT
4660. Gallardo, M.; Massone, C. A.; Tagliaferri, A. A.;
Garavaglia, M.; Persson, W.; Phys. Scr. **19**, 538–544
(1979).
5s²5p³(⁴S)nl Levels of Xe III.
Xe III: EL ND CL IP AT
4661. Hackel, L. A.; Bender, C. F.; Johnson, M. A.; Rushford,
M. C.; J. Opt. Soc. Am. **69**(2), 230–232 (1979).
Hyperfine Structure Measurements of High-Lying Levels of
Uranium.
U I: Hfs
4662. Johnson, B. M.; Jones, K. W.; Cecchi, J. L.; Kruse, T.
H.; IEEE Trans. Nucl. Sci. **NS-26**(1), 1317–1319 (1979).
Spectra from Foil-Excited Molybdenum Ions.
Mo XIII, XIV: CL
4663. Johnson, B. M.; Jones, K. W.; Cecchi, J. L.; Hinnov, E.;
Kruse, T. H.; Phys. Lett. A **70**(4), 320–322 (1979).
Comparison of Tungsten and Gold Radiation from Beam-Foil
Excitation and Tokamak-Produced Plasmas.
W XXI, XXV, XXIX, XXXIV, Au XXVI, XXX, XXXIV: TA
Au XXXIX: TA
4664. Kancerevicius, A. Yu.; Sov. Phys. Collect. **18**(2), 10–15
(1978).
Superposition of Quasidegenerate Configurations with
Principal Quantum Number N=3.
Ti III, Ni III, V III, Cr IV, Fe VI, Co III: PT
4665. Kononov, E. Ya.; Ryabtsev, A. N.; Churilov, S. S.; Phys.
Scr. **19**, 328–334 (1979).
Spectra of Sodium-Like Ions Cu XIX–Br XXV.
Cu XIX, Zn XX, Ga XXI, Ge XXII: EL CL IP
As XXIII, Br XXV: EL CL IP
Se XXIV: EL CL
4666. Kozlov, M. G.; Kotochigova, S. A.; Opt. Spectrosc. (USSR)
46(1), 10–12 (1979).
Absorption Spectrum of Europium Vapor in the 2200–1300-Å
Region.
Eu I: EL CL W
4667. Kuplyauskis, Z. I.; Opt. Spectrosc. (USSR) **46**(1), 5–7
(1979).
Energies of K_α X-Ray in Neon.
Ne IV–IX: AT
4668. Lucatorto, T. B.; McIlrath, T. J.; Phys. Rev. Lett.
37(7), 428–431 (1976).
Efficient Laser Production of a Na⁺ Ground-State Plasma
Column: Absorption Spectroscopy and Photoionization
Measurement of Na⁺.
Na II: EL CL
4669. Lunell, S.; Int. J. Quantum Chem. **15**, 97–107 (1979).
Comparison of UHF and PHF Methods for Hyperfine Structure
Calculations.
Li I: Hfs AT
4670. Oda, N.; Tahira, S.; Nishimura, F.; Koike, F.; Phys. Rev.
A **17**(2), 801 (1978).
Erratum: Energy and Angular Distribution of Electrons
Ejected from Autoionization States in Helium by Electron
Impact.
He I: EL
4671. Odabasi, H.; Phys. Scr. **19**, 313–317 (1979).
Regularities in Ionization Potentials.
Li I, Be I, II, B II, III, C III, IV, N IV, V: IP
O V, VI, F VI, VII, Ne I, VII, VIII, Na II: IP
Mg III, Al IV, Si V, P VI, S VII, Cl VIII: IP
Ar I, IX, K II, X, Ca III, XI, Sc IV, Ti V: IP
V VI, Cr VII, Mn VIII, Fe IX: IP
4672. Odintzova, G. A.; Striganov, A. R.; J. Phys. Chem. Ref.
Data **8**(1), 63–68 (1979).
The Spectrum and Energy Levels of the Neutral Atom of
Boron (B I).
B I: ND
4673. Pyper, N. C.; Grant, I. P.; J. Chem. Soc., Faraday Trans.
II **74**, 1885–1900 (1978).
Studies in Multiconfiguration Dirac-Fock Theory. Part 3.
Interpretation of the Electronic Structure of Neutral
and Ionized States of Uranium.
U I–VII: AT
4674. Sandlin, G. D.; Tousey, R.; Astrophys. J. **227**, L107–L109
(1979).
On the Solar Coronal Lines 1175–1965 Å.
Ne V, IX, Al VII, P IX, Fe X, XI, Ni XI, XII: CL
4675. Tunnell, T. W.; Can, C.; Bhalla, C. P.; IEEE Trans. Nucl.
Sci. **NS-26**(1), 1121–1123 (1979).
Role of Relativistic Effects and Configuration Mixing on
the 1s2s3p ⁴P (J=5/2) States of Argon.
Ar XVI: AT
4676. Yoshino, K.; Tanaka, Y.; J. Opt. Soc. Am. **69**(1), 159–165
(1979).
Absorption Spectrum of Krypton in the Vacuum UV Region.
Kr I: EL CL IP
4677. Cantu, A. M.; Jannitti, E.; Mazzoni, M.; Pettini, M.;
Tondello, G.; Phys. Scr. **19**, 283–288 (1979).
Absorption Spectrum of Ag I in the Vacuum Ultraviolet.
Ag I: EL CL W
4678. Brunt, J. N. H.; King, G. C.; Read, F. H.; J. Phys. B
10(18), 3781–3796 (1977).
Near-Threshold Electron Impact Excitation of
Ultraviolet-Emitting Levels of Neon, Argon, Krypton and
Xenon Atoms.
Ne I, Ar I, Kr I, Xe I: EL CL
4679. Cowley, C. R.; Arnold, C. N.; Astrophys. J. **226**, 420–426
(1978).
New Wavelengths for Astronomical Spectroscopy:
Application to Ap Stars.
Cr II: W
4680. Dembczynski, J.; Ertmer, W.; Johann, U.; Penselin, S.;
Stinner, P.; Z. Phys. A **291**, 207–218 (1979).
Laser-Rf Double-Resonance Studies of the Hyperfine
Structure of Metastable Atomic States of ⁵⁵Mn.
Mn I: Hfs
4681. Dohmann, H. D.; Mann, R.; Z. Phys. A **291**, 15–22 (1979).
Measurement of the Lifetime of the ³P₂ and ⁴P_{5/2} States
in Ar¹⁶⁺ and Ar¹⁵⁺.
Ar XVI, XVII: CL
4682. Fujimoto, T.; Ueda, K.; Fukuda, K.; J. Quant. Spectrosc.
Radiat. Transfer **21**, 89–91 (1979).
Observations of the Collision-Induced Dipole Transitions
and of a Quadrupole Transition for Barium in Krypton.
Ba I: CL
4683. Garnir, H. P.; J. Opt. Soc. Am. **69**(6), 916–917 (1979).
Addition to the Beam-Foil Study of S VII in the Vacuum

3. Bibliography Ordered by Reference Numbers—Continued

- Ultraviolet.
S VII: EL CL
4684. Getts, K.; Mikhailov, Yu. A.; Pikuz, S. A.; Sklizkov, G. V.; Faenov, A. Ya.; Fedotov, S. I.; Ferster, E.; Tsaumzail, P.; Instrum. Exp. Tech. (USSR) **21**(3), 771-777 (1978).
Use of High-Quality Crystals for X-Ray Spectroscopic Diagnostics of a Laser Plasma.
Al XI, XII, Si XIV, S XIV, XV: CL
4685. Gustavsson, M.; Olsson, G.; Rosen, A.; Z. Phys. A **290**, 231-243 (1979).
Hyperfine-Structure Investigation in the 6s5d Configuration of ^{135}Ba and ^{137}Ba .
Ba I: Hfs
4686. Hallstadius, L.; Z. Phys. A **291**, 203-206 (1979).
Extended Measurements of Isotope Shifts in Mg I.
Mg I: IS
4687. Iglesias, L.; Opt. Pura Apl. (Spain) **12**, 63-89 (1979).
Espectro Co II.
Co II: EL CL
4688. Jankowski, K.; Malinowski, P.; Polasik, M.; J. Phys. B **12**(3), 345-353 (1979).
Pair Correlation Energies for the 3d Shell.
Zn III: AT
4689. Katayama, D. H.; Cook, J. M.; Bondybey, V. E.; Miller, T. A.; Chem. Phys. Lett. **62**(3), 542-546 (1979).
Rydberg Series of Atomic He by Opto-Galvanic Spectroscopy.
He I: EL CL
4690. Keil, R.; Toschek, P. E.; Sov. J. Quantum Electron. **8**(8), 949-952 (1978).
Two-Photon Light Shift and Two-Photon Lamb Dips.
He I: QF
4691. Khvostenko, G. I.; Prikl. Spektrosk. **78-80** (1977).
Observation of Multiquantum Electric Dipole Transitions on Cesium-133 $7^2\text{P}_{3/2}$ Sublevels.
Cs I: Hfs
4692. Klingbeil, U.; Kowalski, J.; Trager, F.; Wiegemann, H. B.; zu Putlitz, G.; Sov. J. Quantum Electron. **8**(8), 976-978 (1978).
Atomic Beam Saturation and Resonance Fluorescence Spectroscopy of a Calcium Intercombination Line.
Ca I: QF
4693. Korolev, F. A.; Znamenskii, N. V.; Odintsov, V. I.; JETP Lett. **28**(7), 419-422 (1978).
Stimulated Emission in Multiphoton Excitation of an Atom above the Ionization Limit.
Rb I: CL
4694. Lutz, J. H.; Seaton, M. J.; Mon. Not. R. Astron. Soc. **187**, 1P-7P (1979).
The $[\text{Ne IV}]^2\text{D} \rightarrow ^4\text{S}$ Lines in the Planetary Nebula NGC 7662.
Ne IV: EL CL
4695. Nilsson, L.; Svanberg, S.; Z. Phys. A **291**, 303-309 (1979).
Precision Determination of the Fine-Structure Splittings of the 5d and 6s States in Potassium.
K I: EL
4696. Odintsova, N. K.; Striganov, A. R.; Prikl. Spektrosk. **22-23** (1977).
Isotopic Displacement and Deformation of Tungsten Nuclei.
W I: IS
4697. Ottley, T. W.; Ross, K. J.; Phys. Lett. A **56**(4), 270-272 (1976).
Ejected Electron Spectrum of Sodium Autoionizing Levels Obtained by Electron Impact Excitation at 500 eV Incident Energy.
Na I: EL CL W
4698. Raassen, A. J. J.; van Kleef, T. A. M.; Physica (Utrecht) **96C**, 367-384 (1979).
Analysis of the Fifth Spectrum of Cobalt (Co V).
Co V: EL CL PT
4699. Safronova, U. I.; Sidel'nikov, Yu. V.; Prikl. Spektrosk. **5-7** (1977).
Nickel XXVII-XXV Ion Spectra in the Plasma of a Weakly Inductive Vacuum Spark.
Ni XXV-XXVII: CL
4700. Senashenko, V. S.; Wague, A.; J. Phys. B **12**(8), L269-L273 (1979).
Resonance Photoabsorption of the Helium Atom in the Vicinity of the $(3s3p)^1\text{P}$ Resonance.
He I: AT
4701. Sharp, J. M.; Comer, J.; Hicks, P. J.; J. Phys. B **8**(15), 2512-2519 (1975).
Autoionizing Transitions in Neon Studied by Low Energy Electron Impact.
Ne I: EL CL
4702. Van Baak, D. A.; Clark, B. O.; Pipkin, F. M.; Phys. Rev. A **19**(2), 787-801 (1979).
The $3^2\text{S}_{1/2} - 3^2\text{S}_{3/2}$ Interval in Atomic Hydrogen. I. Two-Photon Line-Shape Theory.
H I: EL
4703. Worden, E. F.; Conway, J. G.; At. Data Nucl. Data Tables **22**, 329-366 (1978).
The Emission Spectrum of Berkelium.
Bk I, II: EL CL W ZE Hfs
4704. Zaal, G. J.; Hogervorst, W.; Eliel, E. R.; van Leeuwen, K. A. H.; Blok, J.; Z. Phys. A **290**, 339-344 (1979).
A High Resolution Study of the Transitions $4f^7 6s^2 \rightarrow 4f^7 6s 6p$ in the Eu I-Spectrum.
Eu I: Hfs IS
4705. Ziem, P.; Bruch, R.; Stolterfoht, N.; J. Phys. B **8**(18), L480-L484 (1975).
Autoionization Spectra of Li I and Li II Excited by H^+ and He^+ Impact.
Li I, II: EL
- 4706A. Storey, J. W. V.; Watson, D. M.; Townes, C. H.; Sci. Tech. Aerosp. Rep. **17**(9), 1213 (1979).
Observations of Far-Infrared Fine Structure Lines: [O III] 88.35 Micrometer and [O I] 63.2 Micrometer.
O I, III: CL
4707. Sokolov, Yu. L.; Proc. 6th Int. Conf. Atomic Physics, Aug. 17-22, 1978, Riga, USSR, R. Damburg and O. Kukain Editors, pp. 207-222 (Plenum Press, New York, 1978).
Determination of the Lamb Shift ($H, n=2$) by the "Atomic Interferometer" Method.
H I: QF
4708. Ahmad, S. A.; Venugopalan, A.; Saksena, G. D.; Spectrochim. Acta, Part B **34**, 221-235 (1979).
Isotope Shifts in Odd and Even Energy Levels of the Neutral and Singly Ionised Gadolinium Atom.
Gd I, II: ND IS
4709. Weaver, J. H.; Olson, C. G.; 5th Int. Conf. Vac. Ultraviolet Radiat. Phys., Ext. Abstr., Vol. II, Sept.

3. Bibliography Ordered by Reference Numbers—Continued

- 5-9, 1977, Montpellier, France, M. C. Castex, M. Pouey, and N. Pouey, Editors, pp. 52-54 (C.N.R.S., Meudon, France).
- Soft X-Ray Absorption Studies of Thorium 5d-5f Structures in Thorium and Thorium Compounds.
Th V: CL
4710. Hansen, J. E.; Persson, W.; J. Phys. B **12**(12), L331-L334 (1979).
The Influence of Relativistic Effects on the Lifetime of the $5s5p^6\ ^2S_{1/2}$ State of Xe II.
He II: AT PT
4711. Muradov, V. G.; Opt. Spectrosc. (USSR) **46**(5), 476-478 (1979).
Determination of the Relative Oscillator Strengths of Sn I and Evaluation of the Hyperfine Splitting of $5\ ^3D_1^0$ and $6\ ^3P_2^0$ Levels using Line Absorption Measurements.
Sn I: Hfs
- 4750T. Vala, A. P.; Ramonas, A. A.; Dagis, R. S.; Opt. Spectrosc. (USSR) **39**(6), 634-636 (1975).
Parametrization of Terms in nl^N Configurations.
Ne V, Si IX, Ca VII, V I, III, Fe VII: AT
Ni I, III: AT
- 4751T. Saitov, R. K.; Trifonov, E. D.; Shendrik, A. V.; Yudin, D. M.; Opt. Spectrosc. (USSR) **39**(5), 461-463 (1975).
Interpolated Values of $|\psi_{ns}(0)|^2$.
H I - Lr I: AT
- 4752T. Ivanova, E. P.; Safronova, U. I.; J. Phys. B **8**(10), 1591-1602 (1975).
Perturbation Theory in Calculations of Atomic Energy Levels.
He I - Ne I: AT
- 4753T. Ivanov, L. N.; Safronova, U. I.; Int. J. Quantum Chem. **9**, 711-719 (1975).
Perturbation Theory for Degenerate States of Atomic and Molecular Systems.
N IV, F VI, Na VIII, Ar IX, P XII: AT
Cl XIV, K XVI, Sc XVIII: AT
- 4754T. Band, I. M.; Trzhaskovskaya, M. B.; Konstantinov Leningrad Inst. Nucl. Phys. Acad. Sci. USSR, Rep. 90, 54 pp. (1974).
Eigenvalues, Electronic Charge Densities in the Vicinity of the Nuclei and Expectation Values in Self-Consistent Potentials for Free Atoms and Ions, $2 \leq Z \leq 52$.
He I - Te I-VI: AT
- 4755T. Band, I. M.; Trzhaskovskaya, M. B.; Konstantinov Leningrad Inst. Nucl. Phys. Acad. Sci. USSR, Rep. 91, 54 pp. (1974).
Eigenvalues, Electronic Charge Densities in the Vicinity of the Nuclei and Expectation Values in Self-Consistent Potentials for Free Atoms and Ions, $53 \leq Z \leq 63$.
I I-VII - Eu I-IV: AT
- 4756T. Band, I. M.; Trzhaskovskaya, M. B.; Konstantinov Leningrad Inst. Nucl. Phys. Acad. Sci. USSR, Rep. 92, 51 pp. (1974).
Eigenvalues, Electronic Charge Densities in the Vicinity of the Nuclei and Expectation Values in Self-Consistent Potentials for Free Atoms and Ions, $64 \leq Z \leq 94$.
Gd I-IV - Pu I-VI: AT
- 4757T. Colpa, J. P.; Thakkar, A. J.; Smith, V. H., Jr.; Randle, P.; Mol. Phys. **29**(6), 1861-1875 (1975).
An Analysis of Energy Differences in Atomic Multiplets in Connection with the Inequality Formulation of Hund's Rules. I. Frozen Versus Relaxed SCF Orbitals and Energies.
He I - Mg XI, C I - O III, N I - F III: AT
O I - Ne III: AT
- 4758T. Dalgaard, E.; Linderberg, J.; J. Phys. B **8**(13), 2160-2171 (1975).
Model Hamiltonians and Multiplet Structure of Atoms with Configurations $s^n p^k$.
B I - F I, Al I - Cl I: AT
C II - Ne II, Si II - Ar II: AT
- 4759T. Lunell, S.; Phys. Scr. **12**(1-2), 63-66 (1975).
Oscillator Strengths for the Lithium Isoelectronic Sequence from Spin-Optimized SCF Wave Functions.
Li I - F VIII: AT
- 4760T. Rahimullah, K.; Chaghtai, M. S. Z.; J. Quant. Spectrosc. Radiat. Transfer **16**(2), 105-112 (1976).
Theoretical Study of the np^k Configurations.
C I - V XVIII, N I - Cl XI: PT
Si I - Ni XV, P I - Ti VIII: PT
Ge I - Br IV, As I - Nb IX: PT
Se I - Sb XVIII, Sn I - Te III: PT
Sb I - Xe IV, Pb I, Bi I, II: PT
- 4761T. Au, C. K.; Phys. Lett. A **56**(3), 186-188 (1976).
Non-Relativistic Ground State Lamb Shift of Hydrogenic Ions.
H I - Yb LXX: QF
- 4762T. Scofield, J. H.; Lawrence Livermore Lab. Rep., UCID-16848, 15 pp. (1975).
Energies of Hydrogen and Helium Like Ions for Z's from 6 to 54.
C V, VI - Xe LIII, LIV: AT
- 4763T. Bagus, P. S.; Lee, Y. S.; Pitzer, K. S.; Chem. Phys. Lett. **33**(3), 408-411 (1975).
Effects of Relativity and of the Lanthanide Contraction on the Atoms from Hafnium to Bismuth.
Hf I, Re I, Au I, Hg I, Tl I: AT
Pb I, Bi I: AT
- 4764T. Gurchumeliya, A. D.; Oboladze, N. S.; Safronova, U. I.; Opt. Spectrosc. (USSR) **39**(3), 248-250 (1975).
Calculation of Energies of Autoionizing States of Multiply Charged Ions Using Perturbation Theory.
C V, O VII, Mg XI, Ca XIX, Fe XXV: AT
- 4765T. Fraga, S.; Saxena, K. M. S.; Univ. Alberta, Tech. Report TC-AS-III-76, 290 pp. (1976).
Atomic Structure, Five-Electron Isoelectronic Series: Boron I through Neon VI.
B I, C II, N III, O IV, F V, N VI: AT
- 4766T. Karwowski, J.; Saxena, K. M. S.; Fraga, S.; Can. J. Phys. **53**(21), 2421-2427 (1975).
Fine Structure Intervals in Transition Elements.
Ti I-III, V I-III, Cr I-III: PT
Fe I-III, Co I-III, Ni I-III: PT
Zr I-III, Nb I-III, Mo I-III: PT
Ru I-III, Rh I-III, Pd I-III: PT
Hf I-III, Ta I-III, W I-III: PT
Os I-III, Ir I-III, Pt I-III: PT
- 4767T. Sternheimer, R. M.; Rodgers, J. E.; Lee, T.; Das, T. P.; Phys. Rev. A **14**(5), 1595-1602 (1976).
Effect of the Atomic Core on the Fine-Structure Splitting for Excited np States of the Alkali Metal Atoms.
Na I, K I, Rb I, Cs I: AT
- 4768T. Hansen, J. E.; J. Phys. B **8**(17), 2759-2770 (1975).

3. Bibliography Ordered by Reference Numbers—Continued

- The Structure of the Autoionizing p^5d s Configurations in Mg II, Ca II, Sr II and Ba II and Interpretation of Electron Impact Cross Sections for These Ions.
Rb II, Mg II, Ca II, III, Sr II, III, Ba II: AT
- 4769T. Garpman, S.; Lindgren, I.; Lindgren, J.; Morrison, J.; Z. Phys. A **276**(3), 167-177 (1976).
A Many-Body Calculation of the Hyperfine Interaction in the Lowest 2S and 2P States of Li-Like Systems.
Li I, Be II, B III, C IV, N V, O VI: AT
F VII: AT
- 4770T. Kucas, S.; Karosiene, A.; Karaziya, R. I.; Izv. Akad. Nauk SSR, Ser. Fiz. **40**(2), 270-278 (1976).
Localization of a 4f Electron as a Function of the Term in the $4d^94f$ Configuration for Xenon, Cesium, Barium, and Lanthanum.
Xe I, Cs I, II, Ba I-III, La II: AT
- 4771T. Kancerevicius, A.; Liet. Fiz. Rinkiny **15**(5), 721-729 (1975).
On the Calculation of the Energy Spectrum of Atoms in $1s^22s^22p^N3p$ and $1s^22s^22p^N3d$ Configurations.
N I, O I, II, F I, II, Ne I-III: PT
- 4772T. Klimchitskaya, G. L.; Vestn. Leningr. Univ., Fiz., Khim. **16**, 17-19 (1975).
Calculations of Spectra of Two-Electron Ions with a High Degree of Ionization.
O VII-Cu XXX: AT
- 4773T. Safronova, U. I.; Bolotin, A. B.; Czech. J. Phys. B **26**, 945-956 (1976).
Wavelengths and Transition Probabilities for the Nitrogen Isoelectronic Series.
N I - Zn XXIV: AT
- 4774T. Goldsmith, S.; Conway, J. G.; Lawrence Berkeley Lab., LBL-4001, 15 pp. (1975).
An Analysis of the Configurations $5d^86s^2$ in Pt I through Hg III and $5d^96p$ in Pt I through Bi VI.
Pt I, II, Hg III, Tl IV, Pb V: PT
Bi VI: PT
Au II: PT ZE
- 4775T. Angelov, B. M.; Chem. Phys. Lett. **43**(2), 368-370 (1976).
Electron Affinities of the Lanthanides.
 La^- , Ce^- , Pr^- , Nd^- , Pm^- , Sm^- , Eu^- : TE
 Gd^- , Tb^- , Dy^- , Ho^- , Er^- : TE
- 4776T. Boiko, V. A.; Faenov, A. Ya.; Pikuz, S. A.; J. Quant. Spectrosc. Radiat. Transfer **19**, 11-50 (1978).
X-Ray Spectroscopy of Multiply-Charged Ions from Laser Plasmas.
Na IX, X, Mg X, XI, Al XI, XII, Si XII, XIII: AT
P XIII, XIV, S XIV, XV, Cl XV, XVI: AT
Ar XVI, XVII, K XVII, XVIII, Ca XVIII, XIX: AT
Sc XIX, XX, Ti XX, XXI, V XXI, XXII: AT
Fe XVII-XXIV: AT
- 4777T. Bromage, G. E.; Fawcett, B. C.; Mon. Not. R. Astron. Soc. **179**, 683-690 (1977).
The $2p^3-2p3d$ Transition Array in Fe XX and Isoelectronic Ions.
Si VIII, Ca XIV, Fe XX: PT
S X, Cl XI, Ar XII, K XIII, Ca XIV, Sc XV: TE
Ti XVI, V XVII, Cr XVIII, Mn XIX, Fe XX: TE
- 4778T. Chang, T. N.; Poe, R. T.; Phys. Rev. A **14**(1), 11-17 (1976).
Fine Structure for D and F States of the Helium Isoelectronic Sequence.
He I, Li II, Be III, B IV, C V: TE
- 4779T. Sandlin, G. D.; Brueckner, G. E.; Tousey, R.; Astrophys. J. **214**(3), 898-904 (1977).
Forbidden Lines of the Solar Corona and Transition Zone: 975-3000 Å.
C III, N III, IV, O III-V, VII, Ne IV-VI: W
Mg V-VII, Si III, VII-IX, P III, IV, S IV, V: W
S IX-XI, Ar XI, XIII, Ca XV, Cr X, XI: W
Mn XI, XII, Fe IX-XIII: W
Fe XVIII, XIX, XXIV: W
- 4780T. Boiko, V. A.; Faenov, A. Ya.; Pikuz, S. A.; Safronova, U. I.; Mon. Not. R. Astron. Soc. **181**, 107-120 (1977).
The Analysis of Satellites to the H-Like Ion Resonance Lines Observed in the X-Ray Region.
Mg XI, Al XII, Si XIII, P XIV, S XV: AT
- 4781T. Lunell, S.; Beebe, N. H. F.; Phys. Scr. **15**, 268-272 (1977).
Hartree-Fock and Configuration Interaction Calculations of Hyperfine Constants in Quartet States of Three-Electron Atoms.
Li I, Be II, B III, C IV, N V: Hfs AT
O VI, F VII: Hfs AT
- 4782T. Buttgenbach, S.; Dicke, R.; Gebauer, H.; Kuhnen, R.; Traber, F.; Z. Phys. A **283**, 303-308 (1977).
Magnetic-Dipole Hyperfine Structure in 4d- and 5d Shell Atoms.
Zr I, Nb I, Ru I, Rh I, Lu I, Hf I: Hfs PT
Ta I, W I: Hfs PT
- 4783T. Rajnak, K.; Fred, M.; J. Opt. Soc. Am. **67**(10), 1314-1323 (1977).
Correlation of Isotope Shifts with $|\Psi(0)|^2$ for Actinide Configurations.
U I, II, Pu I, II, Am I, II, Cm I, II: IS AT
- 4784T. Zibert, Kh. U.; Lemann, D.; Muziol, G.; Shchornak, G.; Opt. Spectrosc. (USSR) **42**(6), 584-586 (1977).
Relativistic Calculation of the Energy Structure of an ^{54}Xe Atom up to High Ionization Degrees by the Dirac-Fock-Slater Method.
Xe I-LXIV: PT
- 4785T. Aashamar, K.; Austvik, A.; Phys. Norv. **8**, 229-237 (1977).
Determination of the Bethe Mean Excitation Energy and the Lamb Shift for Heliumlike Ions.
He I, Li II, Be III, B IV, C V, N VI, O VII: QF
F VIII, Ne IX: QF
- 4786T. Hansen, J. E.; J. Opt. Soc. Am. **67**(6), 754-760 (1977).
Multiconfiguration Hartree-Fock Study of the Interaction Between sp^6 and s^2p^4d in the Cl I, Br I, and I I Isoelectronic Sequences with Particular Emphasis on the Neutral Halogens.
Cl I, Ar II, K III, Br I, Kr II, Rb III: AT
I I, Xe II, Cs III: AT
- 4787T. Klapisch, M.; Perei, R.; Weil, D.; Assn. Euratom-C.E.A., EUR-CEA-FC-827, 49 pp. (1976).
Theoretical Energy Levels and Wavelengths for Some Spectra of Highly Ionized Molybdenum Between Mo XL and Mo XXIV.
Mo XXIV, XXX-XXXIII, XL: PT
- 4788T. Lipsky, L.; Anania, R.; Conneely, M. J.; At. Data Nucl. Data Tables **20**, 127-141 (1977).
Energy Levels and Classifications of Doubly-Excited States in Two-Electron Systems with Nuclear Charge, $Z=1,2,3,4,5$ Below the $N=2$ and $N=3$ Thresholds.

3. Bibliography Ordered by Reference Numbers—Continued

- 4789T. H⁺, He I, Li II, Be II, III, B IV: AT
Ali, M. A.; J. Quant. Spectrosc. Radiat. Transfer **20**, 565–567 (1978).
Hartree–Fock Energies of ⁴D^o and ⁴D^o Doubly Excited States of the Lithium Isoelectronic Sequence.
Li I, Be II, B III, C IV, N V, O VI: AT
F VII, Ne VIII: AT
- 4790T. Boiko, V. A.; Pikuz, S. A.; Safronova, U. I.; Faenov, A. Ya.; Opt. Spectrosc. (USSR) **43**(3), 233–235 (1977).
Wavelengths, Probabilities of Radiative 2l3l'–1s3l' and 2l2l'–1s2l, Transitions, and Probabilities of Radiationless Decay of States for Mg XI – S XV Ions.
Mg XI, Al XII, Si XIII, P XIV, S XV: AT
- 4791T. Cheng, K. T.; Desciaux, J. P.; Kim, Y. K.; J. Phys. B **11**(12), L359–L362 (1978).
Fine Structure in the 1s2p² ⁴P and 1s2s2p ⁴P^o States of Li–Like Ions.
B III, C IV, N V, O VI, Ne VIII, Si XII: AT
Cl XV, Ca XVIII, Fe XXIV: AT
- 4792T. Glass, R.; Hibbert, A.; J. Phys. B **11**(14), 2413–2419 (1978).
The Use of the Breit Interaction: the ³P₁→¹S₀ Intercombination Line in Beryllium–Like Systems.
Be I, B II, C III, N IV, O V, F VI: AT
Ne VII, Si XI: AT
- 4793T. Gurchumeliya, A. D.; Safronova, U. I.; Opt. Spectrosc. (USSR) **43**(6), 606–609 (1977).
Calculation of Energy Levels for Multiply Charged Ions.
Li I – Ca XVIII: AT
- 4794T. Pittel, B.; Schwarz, W. H. E.; J. Phys. B **11**(5), 769–785 (1978).
Semiempirical Determination of Ionisation Potentials, Term Values and Correlation Energies of Third Row Transition–Metal Atoms by Vertical Analysis.
Ti II, V II, Cr II, IV, Mn II, IV–VI: AT
Fe II, VII, VIII: AT
- 4795T. Rashid, K.; At. Data Nucl. Data Tables **21**, 77–90 (1978).
Relativistic Dirac–Fock–Slater Orbital Binding Energies and One–Electron Transition Energies Cu XVI–XIX, Zn XVII–Zn XX, Ag XI–Ag XIX, and Sn XVIII–Sn XXIII.
Cu XVI–XIX, Zn XVII–XX, Ag XI–XIX: AT
Sn XVIII–XXIII: AT
- 4796T. Bogdanovich, P. O.; Rudzikas, Z. B.; Safronova, V. I.; Shadzhuyevne, S. D.; Opt. Spectrosc. (USSR) **44**(6), 618–621 (1978).
The Spectra of 2s²2p⁵3l, 2s²2p⁶3l Configurations with Al and Fe Ions as Examples.
Mo XXXIII, Fe XVII, Al IV, Ca XI: AT
- 4797T. Ali, M. A.; Samanta, S. R.; Phys. Rev. A **19**(1), 202–204 (1979).
Orbital Configuration Assignment of ⁴S^o Doubly Excited States of Lithium Isoelectronic Sequence.
Li I – Ne VIII: AT
- 4798T. Cheng, K. T.; Kim, Y. K.; J. Opt. Soc. Am. **69**(1), 125–131 (1979).
Excitation Energies and Oscillator Strengths in the Silver Isoelectronic Sequence.
Ag I, Sn IV, Xe VIII, Pr XIII, Tb XIX: AT
W XXVIII, Au XXXIII, Th XLIV: AT
- 4799T. Cheng, K. T.; Kim, Y. K.; At. Data Nucl. Data Tables **22**, 547–563 (1978).
Energy Levels, Wavelengths, and Transition Probabilities of Cu–Like Ions.
Ge IV – Mo XIV, Ru XVI, Pd XVIII, Cd XX: AT
Sn XXII, Te XXIV, Xe XXVI, Ce XXX, Sm XXXIV: AT
Dy XXXVIII, Yb XLII, W XLVI, Pt L, Pb LIV: AT
- 4800T. Clark, R. E. H.; Sampson, D. H.; At. Data Nucl. Data Tables **22**, 527–546 (1978).
Intermediate–Coupling Collision Strengths for P–P and P–D Transitions Produced by Electron Impact on Highly Charged He–Like Ions.
O VII, Si XIII, Ca XIX, Fe XXV: AT
Kr XXXV, Mo XLI, Zn XXIX, XLIX: AT
- 4801T. Fielder, W., Jr.; Lin, D. L.; Ton–That, D.; Phys. Rev. A **19**(2), 741–755 (1979).
E1 and M2 Transitions in the Neon Isoelectronic Sequence.
Ne I, Mg III, Si V, Ar IX, Fe XVII, Cu XX: AT
Ge XXIII, Sn XL, Ho LVIII, U LXXXII: AT
- 4802T. Fischer, C. F.; Hansen, J. E.; Phys. Rev. A **19**(5), 1819–1829 (1979).
4s4d ¹D – 4p² ¹D Interaction in the Zn I Isoelectronic Sequence.
Zn I – Kr VII, Mo XIII, Sn XXI, Xe XXV: AT
Sm XXXIII, W XLV: AT
- 4803T. Fischer, C. F.; J. Opt. Soc. Am. **69**(1), 118–123 (1979).
Oscillator Strengths for Some D–F Transitions in the Mg Sequence.
Mg I – Ar VII, Ca IX, Fe XIV, Zn XIX, Kr XXV: AT
Mo XXXI, Sn XXXIX, W LXIII: AT
- 4804T. Glass, R.; J. Phys. B **12**(5), 697–703 (1979).
The 2s2p(³P₁^o) → 2s²(¹S₀^o) Intercombination in Beryllium–Like Mg IX, Si XI, Ar XV, Ca XVII and Fe XXIII.
Mg IX, Si XI, Ar XV, Ca XVII, Fe XXIII: AT
- 4805T. Glass, R.; J. Phys. B **12**(5), 689–696 (1979).
Breit–Pauli Approximation for Highly Ionised Beryllium–Like Ions up to Fe XXIII.
Mg IX, Si XI, Ar XV, Ca XVII, Fe XXIII: AT
- 4806T. Kychkin, I. S.; Sivtsev, V. I.; Bogdanovich, P. O.; Rudzikas, Z. B.; Sov. Phys. Collect. **18**(2), 1–9 (1978).
Investigation of the Energy Spectra of Highly Charged Ions in the Configuration 1s²2s²2p⁵3d in the Relativistic Approximation.
Fe XVII, Ni XIX, Zn XXI, Ge XXIII, Se XXV: AT
Kr XXVII, Sr XXIX, Zr XXXI, Mo XXXIII, W LXV: AT
- 4807T. Larsson, S.; Crossley, R.; Ahlenius, T.; J. Phys. (Paris), Colloq. C1 **40**(2), C1 6–C1 9 (1979).
On the Quartet Spectra of Lithium–Like Ions.
Li I – Ne VIII: AT
- 4808T. Shestakov, A. F.; Opt. Spectrosc. (USSR) **46**(2), 117–118 (1979).
Spectra of Li–Like Multiply Charged Ions: A Theoretical Study.
Li I – Ni XXVI: AT
- 4809T. Rudzikas, Z. B.; Proc. 6th Int. Conf. Atomic Physics, Aug. 17–22, 1978, Riga, USSR, R. Damburg and O. Kukaine, Editors, pp. 92–110 (Plenum Press, New York, 1978).
Peculiarities of the Theoretical Investigation of the Spectra of Many–Electron Atoms and Multiple Charged Ions.
Fe XVII, XVIII, Se XXVI, Mo XXXIII, XXXIV: AT
Xe XLVI, W LXVI, Bi LXXXV, U LXXXIV, Fm XCII: AT
- 4810T. Safronova, U. I.; Safronova, A. S.; Opt. Spectrosc. (USSR) **46**(5), 469–472 (1979).

3. Bibliography Ordered by Reference Numbers—Continued

Different Coupling Schemes in Calculations of
Two-Electron Systems.
Ne IX, Zr XXXIX, Yb LXIX, Fm LCIX: AT

4. Author Index

[illegible]

4. Author Index—Continued

[illegible]

4. Author Index—Continued

3851								3565	3640	3934	4206						
Bogachev, G. G.								Brimicombe, M. S. W. M.									
3892	4272							3894									
Bogdanovich, P. O.								Brink, G. O.									
4113	4402	4403	4536	4615	4796T	4806T		3873	4245								
Bohm, H. D. V.								Bromage, G. E.									
4506								3920	3921	3922	4190	4211	4230	4331			
Boiko, V. A.								4421	4564	4777T							
3690	3840	4042	4043	4110	4146	4329		Bromander, J.									
4330	4404	4466	4608	4612	4615	4652		4617									
4653	4776T	4780T	4790T					Bronowski, J.									
Boklen, K. D.								3812									
3639	4114							Brooks, R. L.									
Bolotin, A. B.								4576	4607	4639							
4773T								Brown, C. M.									
Bombelka, R. M.								3641	3731	3935	3936	3937	4081	4104			
3890								4105	4231	4295	4406						
Bondybey, V. E.								Brown, M. D.									
4689								3806									
Bonn, J.								Bruch, R.									
3687	3734	4519	4525	4545				3566	3567	4102	4516	4517	4705				
Bonnelle, C.								Brueckner, G. E.									
4115								3865	4518	4779T							
Borgstrom, S. A.								Bruhn, R.									
4030	4135	4447						3991	4548								
Borovik, A. A.								Bruner, E. C., Jr.									
4394	4654							3579									
Boruta, I. I.								Brunt, J. N. H.									
4113	4510							3938	3939	3940	3956	4678					
Bossert, T.								Bryant, H. C.									
3639								3995									
Bouchiat, M. A.								Buchet, J. P.									
3560	3596							3568	3609	3829	3984	4034	4111	4581			
Bouma, J.								Buchet-Poulizac, M. C.									
4252	4459							3829	4111	4581							
Bourgey, J.								Buchholz, B.									
4207								3648	4407	4618							
Bradford, R. C.								Bukstich, V. S.									
3720								4283									
Bradley, D. J.								Bullock, J. I.									
3561	3626							3571									
Brambley, R. J.								Bulos, B. R.									
4611								3572									
Brand, H.								Bunge, A. V.									
4229								4212	4408								
Brand, K.								Bunge, C. F.									
3888								3895	4212	4332	4408	4546					
Brandt, H. W.								Burke, P. G.									
4148	4210	4405						3810	3916								
Brechignac, C.								Burkhalter, P. G.									
3563	3763	3846	4107					3863	4000	4109	4286	4333	4409	4547			
Brehm, B.								Burnett, K.									
3564								4611									
Breit, G.								Burrow, P. D.									
4616								4044									
Breton, C.								Butaux, J.									
4176	4360	4436						4655									
Breuckmann, B.								Buttgenbach, S.									
3933	4467	4526						3569	3570	3887	4045	4149	4284	4285			
Breuckmann, E.								4304	4356	4619	4628	4782T					
4526								Buttlar, H. v.									
Brillet, W. L.								3888	3960	4296	4599						

4. Author Index—Continued

Cage, M. E.	4188	4423					
4151 4412							
Cagnac, B.	Chekalin, S. V.	3635	4037	4391			
4067 4183 4184 4468	Chellehmalzadeh, M. A.						
Cahuzac, P.	3857						
3877	Cheng, C. C.						
Callaway, J.	4549						
4232 4334	Cheng, K. T.						
Campani, E.	4302 4399 4574 4791T 4798T 4799T						
4287	Chevokin, V. K.						
Campos, J.	4301						
4494	Childs, W. J.						
Camus, P.	3998 4116 4337 4471 4550 4551 4552						
3610 3793 3862 4148 4202 4228 4335	4553 4656						
4410 4461	Chipman, E.						
Can, C.	3579						
4675	Chirkov, V. A.						
Cantu, A. M.	4650						
4191 4677	Chu, S.						
Cardon, B. L.	3999 4117						
4204	Chugunov, A. Yu.						
Carette, J. D.	4330 4652						
3802 3804 3931 3932 4154	Churilov, S. S.						
Carillon, A.	3551 3628 3635 4077 4185 4665						
4567	Clark, B. O.						
Carlson, L. R.	4214 4554 4702						
3600 3603 3691 3729 3831 3929 4092	Clark, D. L.						
Carnall, W. T.	4151 4412						
3573 3574	Clark, R. E. H.						
Carre, M.	4800T						
4658	Clark, W.						
Carroll, P. K.	4547						
4046 4249 4250	Clieves, H. P.						
Carter, S. L.	4133 4555						
3575	Clua-Gonzalez, A. L.						
Castro, J. C.	4288						
4505	Cocke, C. L.						
Cecchi, J. L.	3580						
4173 4662 4663	Cohen, L.						
Cederbaum, L. S.	3613 3705 3896 4197 4326 4463 4484						
3576	4509						
Certain, P. R.	Cohen, M.						
3847	4657						
Ceyzeriat, P.	Cojan, J. L.						
3958 4093	3559 3581						
Chaghtai, M. S. Z.	Cok, D. R.						
3646 4047 4087 4378 4577 4586 4760T	4621						
Chaika, M. P.	Collins, C. B.						
3875	3733 3857						
Champeau, R. J.	Collins, G. J.						
3577 3858 4180 4213 4233 4411	4027 4248 4261 4269						
Chandler, G. S.	Colpa, J. P.						
4336	4757T						
Chang, T. N.	Colson, S. D.						
4527 4778T	3752						
Chantepie, M.	Comer, J.						
3559 3903	4044 4458 4701						
Chanussot, J.	Commins, E. D.						
4620	3999 4264 4265						
Chapelle, J.	Conneely, M. J.						
3897	4788T						
Chauville, J.	Connerade, J. P.						

4. Author Index—Continued

[illegible]

4. Author Index—Continued

3876								3592	3820	3974	4053	4304	4356	4455
Dewhurst, R. J.								4602	4628					
3748								Dynefors, B. I.						
Diatta, C. S.								3797	4054	4293				
3897								Eckert, H. J.						
Dicke, R.								4194						
3569	3570	3887	4045	4149	4284	4285		Eckstein, J. N.						
4619	4782T							4239						
Dieterle, B. D.								Economou, N. P.						
3995								4055						
Dietrich, D. D.								Edelstein, S. A.						
3795A	4624							3791	3978	4061	4062	4192	4215	4469
Dieulin, M.								Ederer, D. L.						
4461								4561						
Dohmann, H. D.								Edlen, B.						
4292	4416	4681						3593	3851	4234	4344	4345	4346	4472
Dohnalik, T.								Edwards, A. K.						
4353								3617	4475					
Donahue, D. J.								Egert, S.						
4529								4360						
Donahue, J.								Eibofner, A.						
3995								3594	3595	3826	3860	4155		
Donnelly, K. E.								Eidelsberg, M.						
3955	4576	4607	4639					4216	4294					
Doschek, G. A.								Ekberg, J. O.						
3591	3613	3634	3731	4059	4286	4463		3618	3622	3623	3625	3878	4346	
4470	4474	4509	4511	4549	4583			Ekstrom, C.						
Douglas, M.								4418						
4238								El Sherbini, T. M.						
Dozier, C. M.								4056	4419					
3863	4000	4333	4409					Eliel, E. R.						
Drake, G. W. F.								4459	4704					
3796	4273							Ellis, D. G.						
Drerup, B.								3762						
3586								Elston, S. B.						
Dreyfus, R. W.								4086	4531					
3627								English, T. C.						
Driker, M. N.								3993						
4342	4417							Epstein, G. L.						
Drouin, R.								3749	4562					
3554	3718	3987	3988	3989	4036	4319		Erdevdi, N. M.						
4580	4598							3692						
Druetta, M.								Erez, G.						
3568	3609	3829	3984	4093	4580	4581		4020	4634					
Dubke, M.								Eriksonas, K. M.						
4471								4510	4659					
Ducas, T. W.								Eriksson, K. B. S.						
3785	3968	4279						4347						
Dufay, M.								Erkoc, S.						
3900	4658							4156	4563					
Duke, C.								Ershov, L. S.						
4052								4625						
Duley, W. W.								Ertmer, W.						
4308	4495	4585						3768	3769	4680				
Dumont, P. D.								Esherrick, P.						
3614	3856	3885	3949	4294	4343	4491		3627	3880	3941	3942	4157	4278	4473
4543								4542						
Dunn, M. H.								Essl, R.						
4240								4125						
Dunning, F. B.								Esteva, J. M.						
3819	3979							3910						
Duong, H. T.								Evans, K. D.						

4. Author Index—Continued

3764	3905	4008	4642						4530				
Eviatar, A.									Fliflet, A. W.				
3947									3798				
Ewart, P.									Flower, D. R.				
3561	3626	3889	4057						3891				
Fabre, C.									Flusberg, A.				
4119	4348								3655	3898	4123		
Faenov, A. Ya.									Foerster, W.				
3690	3840	4042	4043	4110	4136	4146			3639	4114			
4329	4330	4404	4466	4608	4612	4615			Fogel, Ya. M.				
4652	4653	4684	4776T	4780T	4790T				4385				
Fakhmi, A. O.									Foley, H. M.				
3850									3717				
Falcone, R. W.									Folkmann, F.				
4349									4140				
Fan, B.									Fonck, R. J.				
4420									4476				
Farago, P. S.									Forester, J. P.				
3796									4004	4086	4531		
Farley, J.									Fortin, R.				
3753	4001	4058	4350A						4035				
Faroux, J. P.									Fortson, E. N.				
3688	4209	4614							3747				
Farrag, A. A.									Fournier, P. R.				
4056									4569				
Fastie, W. G.									Fowler, W.				
4082									4082				
Fastrup, B.									Frackowiak, M.				
4517									3658				
Faucher, P.									Fraenkel, B. S.				
3772									4014	4360	4436		
Fawcett, B. C.									Fraga, S.				
3631	3920	3921	3922	3943	4190	4211			4765T	4766T			
4230	4331	4421	4564	4777T					Fred, M.				
Fedotov, S. I.									3793	3862	4783T		
4136	4684								Fredrickson, J. E.				
Fehrenbach, C.									4124				
4182									Fredriksson, K.				
Feklistova, T. H.									3799	3899	4005	4122	4241
3629A									Freed, K. F.				
Feldkamp, L. A.									4649				
4415									Freeman, A. J.				
Feldman, U.									4508				
3591	3613	3634	3731	4059	4286	4326			Freeman, G. H. C.				
4463	4470	4474	4509	4511	4549	4583			4195				
Feldmann, D.									Freeman, R. R.				
4120	4121								3785				
Ferguson, A. I.									Fricke, B.				
4239	4240	4631							4595				
Ferster, E.									Frost, D. C.				
4684									4633				
Fielder, W., Jr.									Fryar, J.				
4801T									4532				
Finkenthal, M.									Fuchs, H. H.				
4176	4360	4436							3639	4114			
Fischer, C. F.									Fueno, T.				
3657	4351	4802T	4803T						4451				
Fischer, H.									Fujimoto, T.				
4052									4682				
Fischer, W.									Fukuda, K.				
3656	4242								3757	3758	4142	4682	
Flambaum, V. V.									Fulop, G. F.				

4. Author Index—Continued

[illegible]

4. Author Index—Continued

4650
 Gupta, R.
 3572 3753 3808 3833 4001 4058 4481
 Gurchumeliya, A. D.
 4764T 4793T
 Gustavsson, M.
 3782 4126 4127 4448 4627 4685
 Gutmacher, R. G.
 3919
 Guttel, C.
 4502
 Hackel, L. A.
 4661
 Hagan, L.
 4575
 Hagstrom, S. A.
 4091
 Hall, J. L.
 4366 4444
 Hallin, R.
 3965 4521A
 Hallstadius, L.
 4068 4244 4686
 Handy, B. J.
 4340
 Hannebauer, F.
 4218 4296
 Hansch, T. W.
 3707 4227 4239 4354
 Hansen, J. E.
 3647 3657 3822 3972 4068 4163 4244
 4428 4710 4768T 4786T 4802T
 Happer, W.
 3833 4263
 Hardcastle, D. L.
 3879
 Haroche, S.
 4119 4348
 Harper, C. D.
 3775 3925 3944
 Harris, S. E.
 4349
 Harrison, Jr., D. E.
 4485
 Hartig, W.
 3671
 Hartmann, S. R.
 3655 3898 4123
 Hartmann, W.
 3616 3636
 Harvey, K. C.
 4069 3823A
 Haselton, H. H.
 3806 4004
 Hassan, G. E. M. A.
 3809
 Hata, J.
 3901 3902
 Hawk, I. L.
 3879
 Hawkins, R. T.
 3976

Hayden, H. C.
 4531
 Hayes, R. W.
 4564
 Heckmann, P. H.
 3888 3960 4296 4588 4599
 Heddle, D. W. O.
 4070 4129
 Hegstrom, R. A.
 3852
 Heider, S. M.
 4245
 Heilig, K.
 4133 4210 4405
 Heinicke, E.
 4120 4121
 Heinzmann, U.
 4246
 Helbert, J. M.
 4303
 Heldt, J.
 3812 4355 4383
 Hellentin, P.
 3667
 Helmcke, J.
 4366
 Henley, E. M.
 4128
 Henrichs, H. F.
 3621 3631
 Henry, R. J. W.
 4232
 Herman, M. F.
 4649
 Hermann, G.
 3996 4130 4429
 Hermann, J. P.
 4605
 Herschel, M.
 3569 4045
 Hertz, H.
 3766
 Hibbert, A.
 3750 4792T
 Hickman, A. P.
 3669
 Hicks, P. J.
 4458 4701
 Higgins, R. B.
 3776
 Hill, K. W.
 4651
 Hill, R. M.
 3791 3978 4061 4062 4192 4215 4469
 Hill, W. T.
 3976
 Hinnov, E.
 4219 4430 4450 4571 4663
 Hippler, R.
 4400
 Hirano, I.
 3773

4. Author Index—Continued

Hirsch, J. M.									3837
4247									Incesu, T.
Ho, Y. K.									4432
4071									Irwin, D. J. G.
Hobby, M. G.								3554	3945
4211	4257	4566							Isaacson, A. D.
Hocker, L. O.								3669	
4431									Isaak, G. R.
Hoefler, K.								4427	4570
3564									Isaev, A. A.
Hofer, B.								3662	
3768	3769								Isaksen, S.
Hogervorst, W.								4324	4572
3668	4252	4459	4704						Ishida, K.
Hohle, C.								3783	
4220									Isler, R. C.
Holin, I. V.								4131	
4330									Ivanov, L. N.
Holmgren, L.								3836	4342 4417 4753T
3556	3666	3672	3859	3861					Ivanova, E. P.
Holt, R. A.								4752T	
4380									Ivanova, T. G.
Horton, R.								4146	4330
4651									Iversen, D. B.
Hotop, H.								3722	4094 4324
3821									Jackson, D. A.
Huber, G.								4171	4573
3592	3665	3687	3734	3820	3974	4304			Jackson, D. J.
4356	4525	4628						4631	
Huet, M.									Jacoby, D.
3581	3664	3903	3904	4629				4075	
Huffman, R. E.									Jacquinet, P.
4442								3592	3820 3974 4304
Hughes, V. W.									Jaffe, C.
4078	4098							4072	
Hugon, M.									Jain, N. K.
4569								3759	
Huhnermann, H.									Jamelot, G.
3656	3894	4220	4242	4297				4567	
Hulet, E. K.									Jankowski, K.
3919								4073	4688
Hultberg, S.									Jannitti, E.
4617								4677	
Humphrey, L. M.									Jeannet, J. C.
4061								4655	
Huq, A.									Jelenkovic, B.
4432								4617	
Hush, N. S.									Jelley, N. A.
4318								3977	3982 4520 4588 4600
Hussain, R.									Jitschin, W.
3962								4471	
Husson, X.									Johann, U.
4298	4629	4630						4680	
Hutcheon, R. J.									Johannin-Gilles, A.
3764	3905	4008	4642					4007	
Hyman, H. A.									Johansson, S.
3663								4009	4196 4433
Iglesias, L.									Johns, J. W. C.
4482	4687							3803	4010
Ikenherry, D.									Johnson, B. M.
3893								4083	4173 4662 4663
Imoto, S.									Johnson, B. W.

4. Author Index—Continued

3857								Kaufman, V.						
Johnson, C. E.								3654	3694	3695	3704	3715	3754	4317
3675	4198							4435	4575	4597				
Johnson, L. P.								Kaveeshwar, V. G.						
3824								4616						
Johnson, M. A.								Kavei, G.						
4661								4251						
Johnson, S. A.								Kazaryan, M. A.						
3600	3603	3691	3729	3831	3929	4092		3662						
Johnson, W. L.								Keesing, R. G. W.						
4027	4248	4261						4013						
Johnson, W. R.								Keil, R.						
4533	4574							4690						
Jones, K. W.								Keirns, M. H.						
3986	4083	4173	4396	4662	4663			3752						
Jones, L. A.								Keiser, G. M.						
3971								3675	4198	4358A				
Jorgensen, K.								Keller, J. C.						
4483								3577	3590	4213	4233			
Joshi, Y. N.								Kelly, H. P.						
3703	3755	3770	3771	3881	3961	4099		3575	3798	3813	3972			
4199	4201	4299	4300	4316	4357	4601		Kelly, R. L.						
Julien, L.								4485						
4353								Kennedy, E. T.						
Juncar, P.								4046	4249	4250				
3592	3820	3974	4304	4356	4628			Kepple, P. C.						
Kaiser, H. J.								3975						
4120	4121							Kernahan, J. A.						
Kakihara, K.								3945	3955	4576	4607			
3842								Kestenbaum, H. L.						
Kaliteevskii, N. I.								4539						
3875								Khaltygin, A. F.						
Kallne, E.								3629A						
3971								Khan, M. A.						
Kancerevicius, A.								3748	3801	4075	4486			
3926	4011	4012	4074	4664	4771T			Khartung, K.						
Kaplyanskii, A. A.								4039						
3702								Khatoon, S.						
Karaziya, R. I.								3646	4047	4087	4378	4577		
4770T								Khriplovich, I. B.						
Karnatak, R. C.								4530						
4115								Khvostenko, G. I.						
Karosiene, A.								4691						
4770T								Kielkopf, J. F.						
Karwowski, J.								4051						
4766T								Kim, Y. K.						
Kas'yanov, Yu. S.								4302	4791T	4798T	4799T			
4301								King, G. C.						
Kaseta, F. W.								3720	3938	3939	3940	3956	4678	
3578								King, M. E.						
Kastner, S. O.								3571						
3619	3630	3705	4197	4434	4484			King, W. H.						
Katayama, D. H.								4164	4195	4359	4578			
4689								Kiriyam, M.						
Kato, Y.								4255						
3714								Kirkbright, G. F.						
Katsnelson, B. G.								3890						
3963								Klapisch, M.						
Kauffman, R.								4014	4128	4145	4176	4360	4436	4787T
3580								Klapisch, R.						
Kaufman, S. L.								3820	3592	3974	4304	4356	4628	
4460	4519							Klein, M. B.						

4. Author Index—Continued

4076 4089 4090
 Kleinpoppen, H.
 3557
 Klempt, W.
 4460 4519 4545
 Kleppner, D.
 3785 4221 4279 4505
 Klimchitskaya, G. L.
 4772T
 Klimkin, V. M.
 3719
 Klingbeil, U.
 4579 4692
 Klinkenberg, P. F. A.
 4487
 Klotz, W. D.
 4165 4174
 Kluge, H. J.
 3665 3687 3734 4052 4525
 Knockel, H.
 4210 4405
 Knystautas, E. J.
 3718 3987 3988 3989 4580 4581 4598
 Koch, H.
 4194
 Koga, Y.
 3773
 Koike, F.
 4670
 Kollath, K. J.
 3558 3845 3848 4401
 Kolosov, V. V.
 4181
 Kolyniak, W.
 3711
 Komarovskii, V. A.
 4187
 Kononov, E. Ya.
 3551 3628 3635 4077 4185 4361 4665
 Konovalov, I. P.
 3735
 Kornalewski, T.
 3711
 Korneev, V. V.
 4608
 Korolev, F. A.
 3850 4693
 Koshelev, K. N.
 3551 3628 3635 4361 4391
 Kotochigova, S. A.
 3706 3849 3946 4363 4534 4535 4666
 Kovalev, V. I.
 3777 4167 4185
 Kowalski, A.
 4355
 Kowalski, F. V.
 3976
 Kowalski, J.
 3906 3950 4362 4488 4579 4692
 Kozlov, M. G.
 3706 3849 3884 3946 4363 4534 4535
 4666

Kramer, P. B.
 4364
 Kremmling, H.
 4052
 Krist, T.
 3964
 Kriukov, P. G.
 4037
 Krokhin, O. N.
 4652
 Kronfeldt, H. D.
 3648 4407 4618
 Krummacher, S.
 4322
 Kruse, T. H.
 3986 4173 4396 4662 4663
 Krutov, V. V.
 4608
 Krylov, B. E.
 3884 4363
 Kryukov, P. G.
 4391
 Ku, W. H. M.
 4539
 Kucal, H.
 4629 4630
 Kucas, S.
 4770T
 Kugel, H. W.
 3786 4635
 Kugler, L.
 3665
 Kuhl, T.
 4052
 Kuhnen, R.
 4284 4285 4782T
 Kulagin, N. A.
 4536
 Kunze, H. J.
 4281
 Kupliauskiene, A. V.
 3716 4166 4186
 Kupliauskis, Z. I.
 3716 4166 4186 4522 4667
 Kupo, I.
 3947
 Kuriyan, M.
 4015
 Kushawaha, V. S.
 3703 3755 3770
 Kuske, P.
 3964
 Kychkin, I. S.
 4402 4806T
 LaTourrette, J. T.
 4022
 Labarthe, J. J.
 3555 4160 4161 4253
 Lacour, B.
 4203
 Lahaye, B.
 3710 4143

4. Author Index—Continued

Lam, L. K. 3787A						Lemann, D. 4784T					
Lambropoulos, M. 3966						Lemen, J. R. 4539					
Lambropoulos, P. 3825						Lemoigne, J. P. 4367					
Lan, V. K. 3810 4232						Les, Z. 4441					
Landais, J. 3559						Letokhov, V. S. 3836 4391 4464 4609					
Lang, D. B. 4259						Leuchs, G. 4411 4489					
Lange, W. 3709						Levenson, M. D. 3775 3925 3944					
Langendam, P. J. K. 4437						Leventhal, M. 3786 4635					
Langlois, J. 3951 4016						Levin, L. A. 4020 4634					
Lapides, J. 4434						Lewis, E. L. 3948					
Larrabee, J. C. 4442						Lewis, M. L. 3980 4078 4490					
Larson, D. J. 4055 4247						Lhuillier, C. 3688 4209 4614					
Larsson, S. 4101 4393 4807T						Liao, K. H. 3808 4004					
Laskowski, B. 3708 3839						Liao, P. F. 3907 3994 4041					
Lasnitschka, G. 3996 4130 4429						Lieberman, S. 3592 3820 3974 4304 4356 4455 4628					
Latimer, C. J. 3819						Liening, H. 3969 3970					
Latush, E. L. 3779						Liesen, D. 4292					
Laughlin, C. 4365						Liljeby, L. 3853 4617					
Lavi, S. 4020 4634						Lin, C. D. 3832 4533					
Lawler, J. E. 4631						Lin, D. L. 4801T					
Lax, B. 4446 4589						Lincke, R. 3972					
Le Dourneuf, M. 3810 4232						Lindel, H. 3970					
Leavitt, J. A. 4396 4624						Linderberg, J. 4758T					
Leavitt, R. P. 3615						Lindgard, A. 4234					
Lecler, D. 4367						Lindgren, B. 4168					
Lecordier, R. 4303						Lindgren, I. 3556 3666 3908 4018 4127 4627 4769T					
Lee, S. A. 3707 4366						Lindgren, J. 3908 4018 4769T					
Lee, S. T. 4033 4132						Lindskog, J. 4521A					
Lee, T. 3872 3893 4017 4767T						Lipsky, L. 4788T					
Lee, T. N. 3816						Lipson, S. J. 4055					
Lee, Y. S. 4763T						Littman, M. G. 3785 4221 4279					

4. Author Index—Continued

[illegible]

4. Author Index—Continued

Mayers, D. F. 3883					Mikhalev, V. G. 3681 3756				
Mazing, M. A. 4301					Mikhalevskii, V. S. 3779				
Mazzoni, M. 4677					Miller, G. E. 3550				
McCollum, W. N. 3712					Miller, T. A. 4589 4689				
McConkey, J. W. 4532					Miller, W. H. 3669				
McDowell, C. A. 4633					Minemoto, T. 3842				
McDowell, H. K. 3712					Minnhagen, L. 3834				
McEachran, R. P. 4657					Miron, E. 4020 4634				
McGuire, E. J. 4373 4584					Mirza, M. Y. 3733 3857 4308 4495 4585				
McGuire, M. D. 4306					Mishin, V. I. 4464 4609				
McIlrath, T. J. 4080 4596 4668					Mitchell, P. 4544				
McIntyre, L. C. 3977 3982 4520 4529					Mitin, Y. N. 3963				
McKellar, A. R. W. 3803 4010					Miyazaki, K. 3757 3758				
McNeil, J. R. 4027 4248 4261 4269					Moe, G. 3572				
Medvedev, V. N. 3702					Moody, S. E. 3966				
Meggers, W. F. 3620 4262					Moore, C. E. 3620 3731 3760 3928 4081				
Mehlhorn, W. 3933 4322 4526					Moore, S. M. 4496				
Mehlman, G. 3910 4561					Morellec, J. 4375				
Meier, T. 3656 4220 4242					Morillon, C. 3674 3680 3682 4335 4410 4461				
Meijer, F. G. 3683 4307					Morlais, M. 4021				
Meinders, E. 3728					Morrison, C. A. 3615				
Meisel, G. 3553 3569 3769 4471					Morrison, J. 3666 4769T				
Mekler, Y. 3947					Morrison, J. D. 3824				
Menzel, N. 3894					Moruzzi, G. 4460 4519				
Merkelis, G. V. 4402 4403 4615					Mosher, D. 4000				
Metsch, B. C. 3739 4307 4457					Moskowitz, P. A. 3679 4537				
Meunier, G. 4658					Mossberg, T. 3655 3898 4123				
Michaelis, W. 4506					Mount, G. H. 4082				
Michejda, J. A. 4044					Mowat, J. R. 4004 4083				
Migdalek, J. 4441					Mulks, C. F. 3872				
Mikhailov, Yu. A. 4136 4684					Muller, G. 3648 3677 4407				

4. Author Index—Continued

Muradov, V. G.					Nilsen, J.				
4711					4498				
Murakawa, K.					Nilsson, L.				
4513					4266	4695			
Murnick, D. E.					Nishimura, F.				
3786	4635				4670				
Murphy, G.					Nitschke, W.				
4497					4114				
Mushtaq, A.					Nogami, Y.				
4586					3844				
Muziol, G.					Nolte, G.				
4784T					3650	4066	4595		
Mwana Umbela, I. S. K.					Norcross, D. W.				
3911					3825	3830			
Nachtsheim, G.					Nordgren, J.				
3639	4114				4392				
Nagel, D. J.					Nordling, C.				
3816	3863	4000			3965	4392			
Nagourney, W.					Noreland, T.				
4263					3965				
Nako, F.					Normand, D.				
4142					4375				
Narain, U.					Nottbeck, B.				
3759					4229				
Neidigh, R. V.					Novick, R.				
4131					3790	4539			
Nella, J.					Nubbmeyer, H.				
4022					4137				
Nesbet, R. K.					Nunnemann, A.				
4023					4636				
Neuffer, D. V.					Nussbaumer, H.				
4264	4265				3651	3843	4637	4638	
Neugart, R.					Nysten, K. E.				
3661	4460	4519	4545		3967				
Neumann, R.					O'Brien, R.				
3950	4362	4488			4588	4600			
Neupert, W. M.					O'Neill, J. A.				
3619	3630				4576	4607	4639		
New, R.					Oboladze, N. S.				
4427	4570				4764T				
Newman, D. J.					Oda, N.				
3818					4670				
Newsom, G. H.					Odabasi, H.				
4169	4559				4671				
Newton, G.					Odintsov, V. I.				
3562	3854	4147	4587		3850	4693			
Nguyen Van, S.					Odintsova, N. K.				
3924					4138	4374	4696		
Niburg, M.					Odintzova, G. A.				
3965					4672				
Nicholas, J. V.					Ogorodnikov, S. N.				
3561	3626				3681	3756			
Nicolaides, C. A.					Ohi, M.				
3723	4103	4106			3773				
Nicolosi, P.					Oksuz, I.				
4172					4156				
Nielson, S. E.					Olsen, J. O.				
4234					4003	4024	4483		
Nikitin, A. A.					Olson, C. G.				
3629A					4709				
Nikolaev, V. N.					Olsson, G.				
3706					4127	4627	4685		

4. Author Index—Continued

Oluwole, A. F. 4309								Peregudov, G. V. 4640 4650								
Ong, W. 3724								Perel, R. 4787T								
Oreg, J. 4014								Perrin, A. 4188								
Orlov, R. V. 3756								Persson, K. B. 4248 4261								
Orth, H. 3725								Persson, W. 3647 4163 4268 4311 4428 4660 4710								
Otten, E. W. 3665 3687 3725 3734 4052 4460 4519 4525 4545 4606								Pert, G. J. 3748 3801 4075								
Ottley, T. W. 3864 3868 3882 3952 4028 4251 4267 4312 4499 4582 4697								Pescht, K. 3954								
Outred, M. 3633								Pesnelle, A. 4304								
Oza, D. H. 4232								Peterson, K. L. 4223 4377								
Paisner, J. A. 3600 3603 3691 3729 3831 3929 4092 4277 4321 451								Peterson, R. S. 4004 4086								
Palenius, H. P. 3701 4084 4168 4442								Petite, G. 4375								
Palmer, B. A. 4443								Petrash, G. G. 3662								
Panke, H. 3930								Petrini, D. 4590								
Pankratov, V. G. 3681								Petrosyan, K. B. 3815 3827								
Panock, R. 4446 4589								Petrov, S. Ya. 4158								
Parcell, L. A. 3951								Petsch, R. 4306								
Parkinson, J. H. 3784 4539								Pettini, M. 4677								
Parkinson, W. H. 4191								Pfeng, H. 4292 4416								
Parsons, M. L. 4223 4377								Piacentini, M. 3915								
Patel, C. K. N. 3786 4635								Pianarosa, P. 3924 4060 4477								
Paul, G. 3566 3567								Pihl, J. 4521A								
Peacock, N. J. 4085 4211 4257 4566								Pikuz, S. A. 3690 3840 4042 4043 4110 4136 4146 4329 4330 4404 4466 4608 4612 4615 4652 4653 4684 4776T 4780T 4790T								
Pegg, D. J. 3806 3986 4004 4086 4173 4396 4531								Pinard, J. 3592 3820 3974 4053 4304 4356 4455 4628								
Pejcev, V. 3864 3882 3952 3953 4251 4267 4310 4312 4376 4379 4499								Pinnington, E. H. 3945 3955 4576 4607 4639								
Pelletier, R. 3659 3660 3811								Pipkin, F. M. 3981 4214 4364 4554 4702								
Pelletier-Allard, N. 3659 3660 3811								Pira, K. 4268								
Pendrill, L. R. 4237								Pisano, D. J. 3986 4396								
Penselin, S. 4680								Pittel, B. 4794T								
Peralta, F. G. 4108								Pitzer, K. S. 4763T								
								Podobedova, L. I.								

4. Author Index—Continued

3551	3628	3635	4515																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

4. Author Index—Continued

[illegible]

4. Author Index—Continued

4518						4784T					
Schinzler, B.						Shen, N. M.					
4460	4519	4545				4315					
Schmelling, S. G.						Shendrik, A. V.					
3873						4751T					
Schmidt, V.						Shestakov, A. F.					
4112	4322	4467				4808T					
Schmitz, W.						Shimoda, K.					
3933	4467	4526				4454					
Schneider, D.						Shimon, L. L.					
4140						3692					
Schneider, F.						Shirley, D. A.					
4422						3805	4033	4132			
Schneider, R.						Shishova, T. A.					
4333	4547					4272					
Scholl, P. S.						Sholokhov, E. I.					
3699						3963					
Schorn, R. A.						Shore, B. W.					
4644						4321					
Schulz, H. H.						Shorer, P.					
4229						4645					
Schumann, S.						Shugart, H. A.					
3650	4066	4595				4432					
Schurmann, D.						Sichel, J. M.					
3698						3951	4016				
Schwarz, W. H. E.						Sidel'nikov, Yu. V.					
4794T						4361	4699				
Schweickert, H.						Siefert, E.					
3661						4224	4501				
Schweitzer, N.						Siegbahn, K.					
4176						4392					
Schwob, J. L.						Sikorska, A.					
4014	4176	4360	4436			4383					
Scofield, J. H.						Sil, N. C.					
3580	4762T					3817					
Seaton, M. J.						Silfvast, W. T.					
3828	3830	4694				4076	4089	4090			
Selander, L.						Silver, J. D.					
4392						3697	3977	3982	4520	4588	4600
Sellin, I. A.						Sims, J. S.					
3806	3986	4004	4396	4531		4091					
Sem, M. F.						Sinanoglu, O.					
3779						4449					
Semenov, R. I.						Singh, R. P.					
4325	4510	4524	4659			4616					
Senashenko, V. S.						Singh, S. P.					
4139	4500	4700				3646					
Serafino, P. H.						Sinzelle, J.					
4078	4490					3588	4150				
Series, G. W.						Sivtsev, V. I.					
3589	4237					4402	4806T				
Shadzhuyvene, S. D.						Sjoedin, R.					
4402	4796T					4521A					
Shalimoff, G. V.						Sklizkov, G. V.					
4270						4136	4684				
Sharifian, H.						Skobelev, I. Yu.					
3995						4110	4456	4640			
Sharp, J. M.						Skrok, D.					
4701						3914					
Shaw, J. R. D.						Skvortsov, A. P.					
3561	3626					3702					
Shchornak, G.						Smirnov, Yu. M.					

4. Author Index—Continued

[illegible]

4. Author Index—Continued

[illegible]

4. Author Index—Continued

4647
van Kleef, T. A. M.
3703 3739 3770 3771 3881 3912 3961
4099 4199 4201 4299 4300 4316 4457
4601 4698
van Leeuwen, K. A. H.
4704
van Piggelen, H. U.
4096
van Raan, A. F. J.
4540
van Schaik, N.
4289
van Wijngaarden, A.
3796 4273
van Zyl, C. P.
4427 4570
VanHoosier, M. E.
3634
Vane, C. R.
4086 4531
Varghese, S. L.
3580
Veillette, P.
3869 4384
Veje, E.
3797
Venugopalan, A.
3870 4323 4708
Verges, J.
3587 3605 3610 3674 3678 3680 3682
3730 3793 3858 3862 4160 4161 4189
4202 4236 4320
Verkhovtseva, E. T.
4385 4541
Vetter, J.
3737 3774
Vialle, J. L.
3592 3820 3974 4053 4304 4356 4602
4628
Victor, G. A.
4365
Vienne-Casalta, D.
4143
Vinogradov, A. V.
4110 4456 4640
Von Reisky, L.
4519
von Goeler, S.
4651
von Niessen, W.
3576
von Rosenberg, C. W., Jr.
3663
Voss, M.
4407
Vukstich, V. S.
3692
Wagner, H.
4220 4297
Wague, A.
4700

Wallbank, B.
4633
Wallenstein, R.
3707
Walther, H.
3671 4411 4489
Wang, E. C.
3721 4025
Ward, D. B.
3738
Warner, J. W.
4507
Warrington, D. M.
4611
Watadani, K.
3835
Watanabe, T.
3757 3758
Watson, D. M.
4706A
Weaver, J. H.
4709
Weber, E. W.
3737 3774 4354 4386
Weckstrom, K.
3967
Wei, P. S. P.
3736
Weil, D.
4787T
Weiss, A. W.
3910 4596
Weisskopf, M. C.
4539
Weitkamp, C.
4506
Wende, B.
4137
Wendin, G.
3886 4112
Wendlandt, D.
4097 4133
Wenz, R.
4159
Werel, K.
4383
Werth, G.
4306 4372
West, J. B.
3993
West, W. P.
3819
Westerveld, W. B.
4647
Wheatley, S. E.
3925
White, M. D.
4603 4648
Widing, K. G.
3604 4387 4623
Wiegemann, H. B.
4579 4692

4. Author Index—Continued

Wieman, C.
 4227 4276
 Wilden, D. G.
 4458
 Wilets, L.
 4128
 Wilke, V.
 3671
 Williams, J. F.
 4002
 Willison, J. R.
 4349
 Wilson, M.
 3730 4274 4388
 Wing, W. H.
 3676 3686 3909
 Winkler, K.
 4362 4488
 Winkler, R.
 3648 3677 3914 4407 4618
 Winter, H.
 4275 4658
 Wisniewski, K.
 4291
 Wittmann, W.
 3964
 Wolf, J. L.
 3915
 Wolfe, D. M.
 3995
 Wolff, H. W.
 3991 4548
 Wolff, R. S.
 4539
 Wood, D. R.
 3699
 Wood, O. R., II
 3786 4635
 Woodgate, G. K.
 4611
 Woods, C.
 3580
 Worden, E. F.
 3600 3605 3610 3691 3729 3831 3919
 3927 4092 4277 4321 4514 4604 4703
 Wortman, D. E.
 3615
 Wright, J. J.
 4531
 Wuilleumier, F.
 4112 4322
 Wusthof, U.
 4397
 Wyart, J. F.
 3743 3871 3962 4202 4228 4320 4389
 4390 4504
 Wynne, J. J.
 3627 3880 3941 4157 4278 4473 4542
 4605
 Yachauskas, I. P.
 4659
 Yamagishi, M.

 3835
 Yamasaki, G.
 4082
 Yates-Williams, M. A.
 3995
 Yeager, D. L.
 4649
 Yoshino, K.
 4676
 Young, A. T.
 4644
 Young, J. F.
 4349
 Yudin, D. M.
 4751T
 Yukov, E. A.
 4110 4640
 Zaal, G. J.
 4252 4459 4704
 Zaki, M. A.
 4419
 Zalesskii, V. Yu.
 4625
 Zalubas, R.
 3552 3611
 Zapesochnyi, I. P.
 3692 4283 4394
 Zeiske, W.
 3769
 Zetterberg, P. O.
 4134 4144
 Zgainski, Z.
 4658
 Zherikhin, A. N.
 4037 4391
 Zhitnik, I. A.
 4608
 Zhukov, V. V.
 3779
 Zibert, Kh. U.
 4784T
 Ziegenbein, B.
 3972
 Ziem, P.
 4705
 Zimmerman, G. H.
 4247
 Zimmerman, M. L.
 3785 3968 4221 4279 4505
 Zimmermann, D.
 4636
 Zimmermann, P.
 4194 4636
 Zirin, H.
 3778
 Znamenskii, N. V.
 4693
 Zon, B. A.
 3963
 zu Putlitz, G.
 3737 3950 4019 4362 4488 4579 4606
 4692

4. Author Index—Continued

Zundell, B. E.
4098

U.S. DEPT. OF COMM. BIBLIOGRAPHIC DATA SHEET	1. PUBLICATION OR REPORT NO. NBS SP 363 Suppl. 2	2. Gov't. Accession No.	3. Recipient's Accession No.
4. TITLE AND SUBTITLE Bibliography on Atomic Energy Levels and Spectra July 1975 through June 1979		5. Publication Date October 1980	
		6. Performing Organization Code	
7. AUTHOR(S) Romuald Zalubas and Arlene Albright		8. Performing Organ. Report No.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS NATIONAL BUREAU OF STANDARDS DEPARTMENT OF COMMERCE WASHINGTON, DC 20234		10. Project/Task/Work Unit No.	
		11. Contract/Grant No.	
12. SPONSORING ORGANIZATION NAME AND COMPLETE ADDRESS (Street, City, State, ZIP) Same as No. 9		13. Type of Report & Period Covered Interim July 1975 -- June 1979	
		14. Sponsoring Agency Code	
15. SUPPLEMENTARY NOTES Library of Congress Catalog Card Number: 80-600055 ☐ Document describes a computer program; SF-185, FIPS Software Summary, is attached.			
16. ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.) This is the second supplement to NBS Special Publication 363, "Bibliography on Atomic Energy Levels and Spectra, July 1968 through June 1971." Supplement 1 covered the period from July 1971 through June 1975, and this bibliography covers the literature from July 1975 through June 1979. It contains approximately 1200 references classified by subject for individual atoms and atomic ions. A number index identifies the references. An author index is included. References include contain data on energy levels, classified lines, wavelengths, Zeeman effect, Stark effect, hyperfine structure, isotope shift, ionization potentials, or theory which gives results for specific atoms or atomic ions.			
17. KEY WORDS (six to twelve entries; alphabetical order; capitalize only the first letter of the first key word unless a proper name; separated by semicolons) Atomic energy levels; atomic spectra; bibliography; energy levels, atomic; spectra, atomic; wavelengths, atoms and ions.			
18. AVAILABILITY ☒ Unlimited ☐ For Official Distribution. Do Not Release to NTIS ☒ Order From Sup. of Doc., U.S. Government Printing Office, Washington, DC 20402 ☐ Order From National Technical Information Service (NTIS), Springfield, VA. 22161		19. SECURITY CLASS (THIS REPORT) UNCLASSIFIED	21. NO. OF PRINTED PAGES 119
		20. SECURITY CLASS (THIS PAGE) UNCLASSIFIED	22. Price \$4.50

Bibliography on Atomic Energy Levels and Spectra,

July 1975 through June 1979

NBS Spec. Publ. 363, Suppl. 2

ERRATA

Page 36, 1st column:

Insert at top of page the heading Holmium

Page 36, 2nd column:

Line 1 should read EL 4443

Insert before line 1 Yb II CL 3654, 3719, 4226

NBS TECHNICAL PUBLICATIONS

PERIODICALS

JOURNAL OF RESEARCH—The Journal of Research of the National Bureau of Standards reports NBS research and development in those disciplines of the physical and engineering sciences in which the Bureau is active. These include physics, chemistry, engineering, mathematics, and computer sciences. Papers cover a broad range of subjects, with major emphasis on measurement methodology and the basic technology underlying standardization. Also included from time to time are survey articles on topics closely related to the Bureau's technical and scientific programs. As a special service to subscribers each issue contains complete citations to all recent Bureau publications in both NBS and non-NBS media. Issued six times a year. Annual subscription: domestic \$13; foreign \$16.25. Single copy, \$3 domestic; \$3.75 foreign.

NOTE: The Journal was formerly published in two sections: Section A "Physics and Chemistry" and Section B "Mathematical Sciences."

DIMENSIONS/NBS—This monthly magazine is published to inform scientists, engineers, business and industry leaders, teachers, students, and consumers of the latest advances in science and technology, with primary emphasis on work at NBS. The magazine highlights and reviews such issues as energy research, fire protection, building technology, metric conversion, pollution abatement, health and safety, and consumer product performance. In addition, it reports the results of Bureau programs in measurement standards and techniques, properties of matter and materials, engineering standards and services, instrumentation, and automatic data processing. Annual subscription: domestic \$11; foreign \$13.75.

NONPERIODICALS

Monographs—Major contributions to the technical literature on various subjects related to the Bureau's scientific and technical activities.

Handbooks—Recommended codes of engineering and industrial practice (including safety codes) developed in cooperation with interested industries, professional organizations, and regulatory bodies.

Special Publications—Include proceedings of conferences sponsored by NBS, NBS annual reports, and other special publications appropriate to this grouping such as wall charts, pocket cards, and bibliographies.

Applied Mathematics Series—Mathematical tables, manuals, and studies of special interest to physicists, engineers, chemists, biologists, mathematicians, computer programmers, and others engaged in scientific and technical work.

National Standard Reference Data Series—Provides quantitative data on the physical and chemical properties of materials, compiled from the world's literature and critically evaluated. Developed under a worldwide program coordinated by NBS under the authority of the National Standard Data Act (Public Law 90-396).

NOTE: The principal publication outlet for the foregoing data is the Journal of Physical and Chemical Reference Data (JPCRD) published quarterly for NBS by the American Chemical Society (ACS) and the American Institute of Physics (AIP). Subscriptions, reprints, and supplements available from ACS, 1155 Sixteenth St., NW, Washington, DC 20056.

Building Science Series—Disseminates technical information developed at the Bureau on building materials, components, systems, and whole structures. The series presents research results, test methods, and performance criteria related to the structural and environmental functions and the durability and safety characteristics of building elements and systems.

Technical Notes—Studies or reports which are complete in themselves but restrictive in their treatment of a subject. Analogous to monographs but not so comprehensive in scope or definitive in treatment of the subject area. Often serve as a vehicle for final reports of work performed at NBS under the sponsorship of other government agencies.

Voluntary Product Standards—Developed under procedures published by the Department of Commerce in Part 10, Title 15, of the Code of Federal Regulations. The standards establish nationally recognized requirements for products, and provide all concerned interests with a basis for common understanding of the characteristics of the products. NBS administers this program as a supplement to the activities of the private sector standardizing organizations.

Consumer Information Series—Practical information, based on NBS research and experience, covering areas of interest to the consumer. Easily understandable language and illustrations provide useful background knowledge for shopping in today's technological marketplace.

Order the above NBS publications from: Superintendent of Documents, Government Printing Office, Washington, DC 20402.

Order the following NBS publications—FIPS and NBSIR's—from the National Technical Information Services, Springfield, VA 22161.

Federal Information Processing Standards Publications (FIPS PUB)—Publications in this series collectively constitute the Federal Information Processing Standards Register. The Register serves as the official source of information in the Federal Government regarding standards issued by NBS pursuant to the Federal Property and Administrative Services Act of 1949 as amended, Public Law 89-306 (79 Stat. 1127), and as implemented by Executive Order 11717 (38 FR 12315, dated May 11, 1973) and Part 6 of Title 15 CFR (Code of Federal Regulations).

NBS Interagency Reports (NBSIR)—A special series of interim or final reports on work performed by NBS for outside sponsors (both government and non-government). In general, initial distribution is handled by the sponsor; public distribution is by the National Technical Information Services, Springfield, VA 22161, in paper copy or microfiche form.

BIBLIOGRAPHIC SUBSCRIPTION SERVICES

The following current-awareness and literature-survey bibliographies are issued periodically by the Bureau:

Cryogenic Data Center Current Awareness Service. A literature survey issued biweekly. Annual subscription: domestic \$35; foreign \$45.

Liquefied Natural Gas. A literature survey issued quarterly. Annual subscription: \$30.

Superconducting Devices and Materials. A literature survey issued quarterly. Annual subscription: \$45. Please send subscription orders and remittances for the preceding bibliographic services to the National Bureau of Standards, Cryogenic Data Center (736) Boulder, CO 80303.

OFFICIAL BUSINESS

Penalty for Private Use, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE
COM-215



SPECIAL FOURTH-CLASS RATE
BOOK

